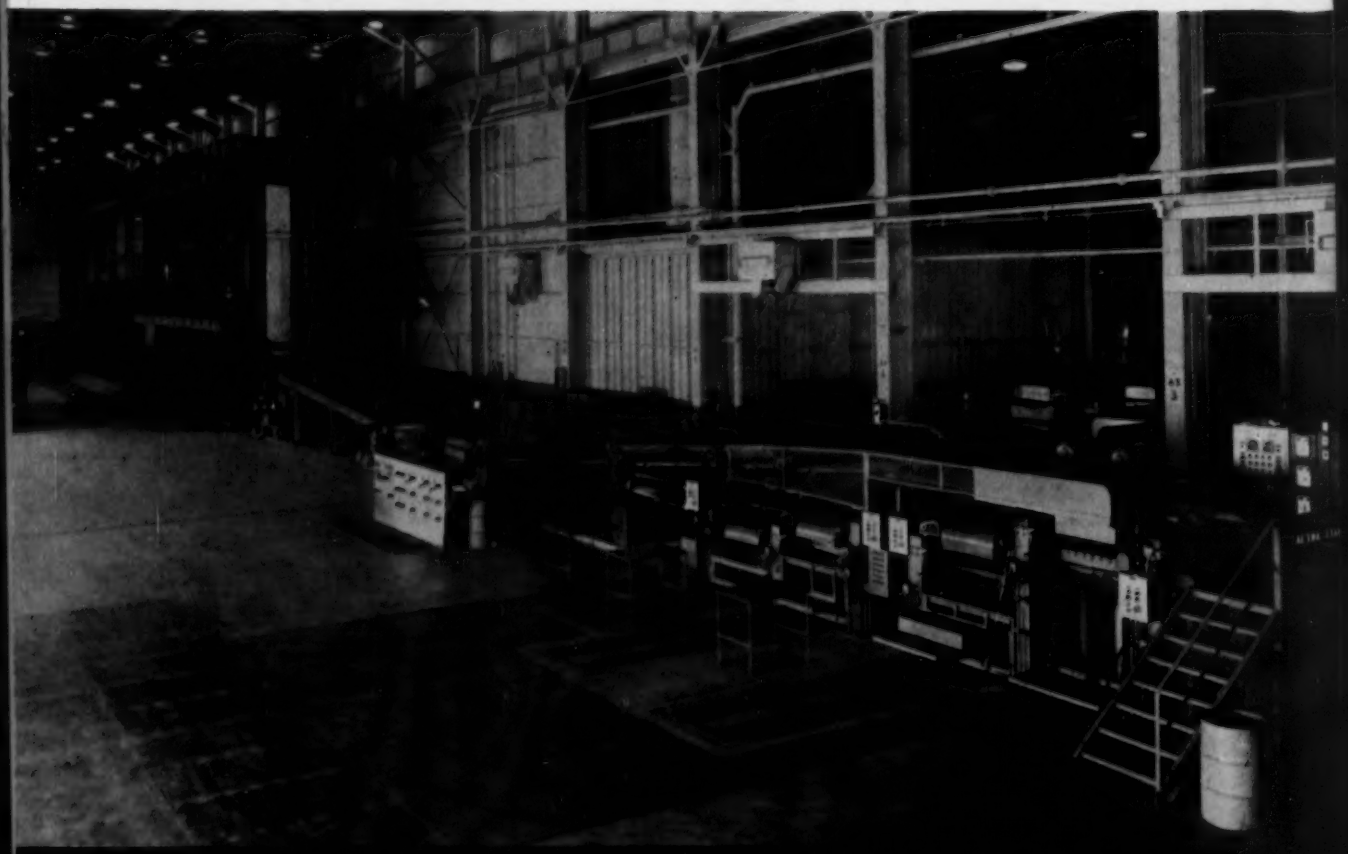
the Iron Age
A Chilton Publication
THE NATIONAL METALWORKING WEEKLY • SEPTEMBER 29, 1955

Your stake in the '56 farm market.
See page 19



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GOOD EQUIPMENT BRINGS DOWN PRODUCTION COSTS

LONGFELLOW'S
VILLAGE BLACKSMITH

Dear to the heart of every small town boy was the shop memorialized in Longfellow's Village Blacksmith, pictured here from an old woodcut. As late as fifty years ago, the smithy was the focal point of rural America's metalworking industry.

Crafts and craftsmen through the ages

NUMBER THREE OF A SERIES

Enlargements of illustrations available upon request

Basic Refractories not only furnishes its customers with the finest refractories available, but also employs skilled craftsmen —men with practical steelmaking experience— to insure that the use of these products gives full value.

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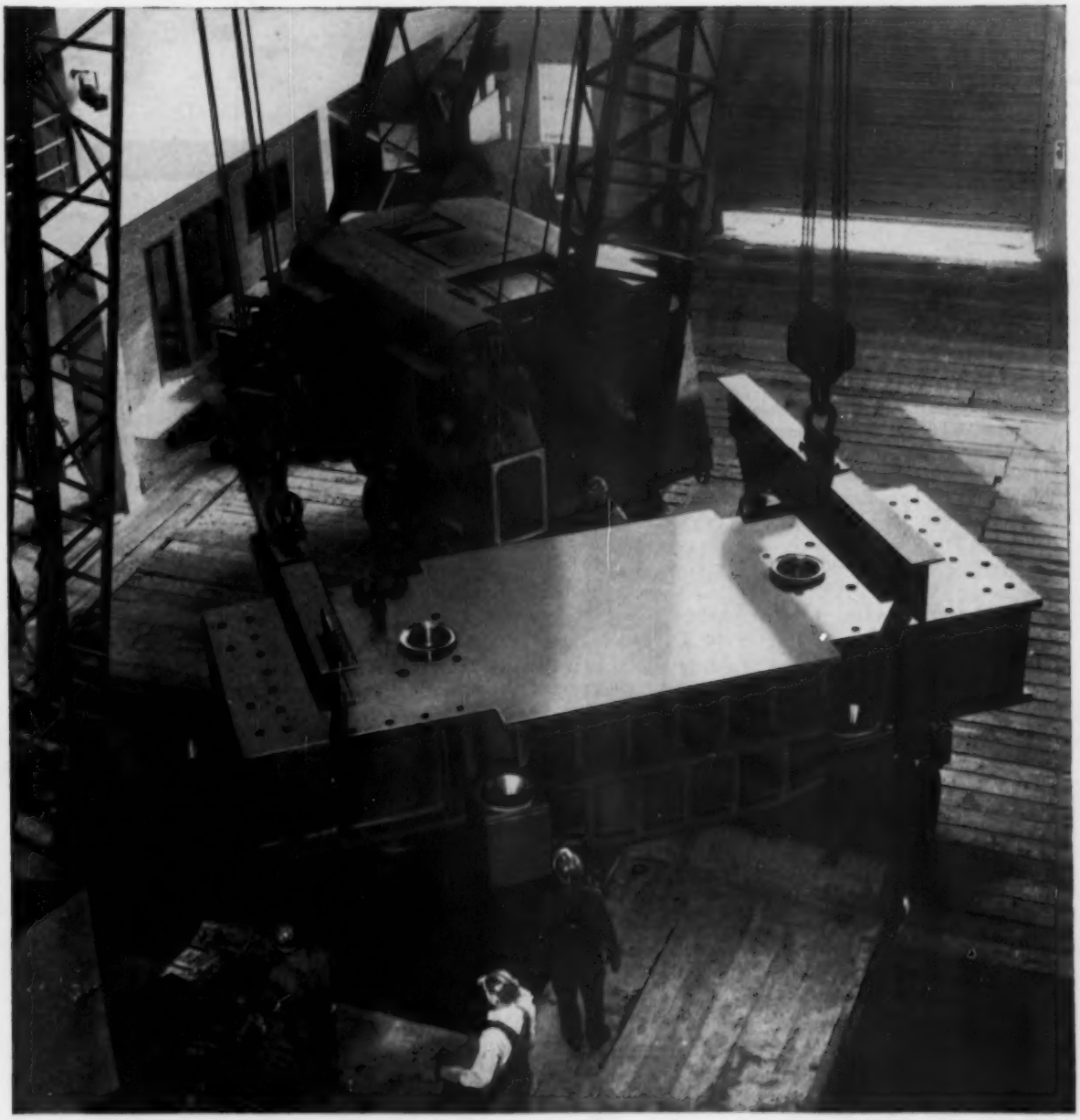

BED PLATE FOR WORLD'S LARGEST TESTING MACHINE

Here being positioned on its supports is the bed plate for the new testing machine at Lehigh University's Fritz Engineering Laboratory. Fabricated by Baldwin-Lima-Hamilton Corporation, the machine's capacity of 5,000,000 lb and sizes of specimens it can handle make it the world's largest universal testing machine. Obviously strength was a vital requirement in the steel for the bed plate. So was weldability, for the plates in the weldment range up to 3½ in. in thickness. Mayari R low-alloy, high-strength steel was chosen for this gruelling service. Not only is Mayari R 50 pct stronger than carbon structural steel but it is actually easier to weld in heavier plate thicknesses. Catalog 353 tells the Mayari R story in full. If you would like a copy, just write our nearest office.

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Mayari R makes it lighter... stronger... longer lasting

the Iron Age

DIGEST OF THE WEEK

Vol. 176, No. 13 September 29, 1955

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Is the Russian Boot Pinching? 7

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NEWS DEVELOPMENTS

WHAT'S HAPPENING DOWN ON THE FARM? — P. 19
The farmer is going in more heavily for mechanization. He's forced to do so by desire to have labor-saving equipment plus circumstance of dwindling farm population, increasing general population. It's a market worth looking into for potential sales of equipment. Immediate and long-term outlooks are good.

WHAT THE PRESIDENT'S ILLNESS MEANS — P. 21
President Eisenhower's sudden heart attack undoubtedly changes the political picture. But it does not automatically mean that government control must pass to extreme liberal forces. Businessmen should not throw up their hands and wait for controls, curbs, etc., to descend. They should take an active interest in political developments, work to preserve government balance.

FAST TAX CLOSED TO STEEL AND ALUMINUM—P. 22
Government's decision to keep the lid on fast tax write-offs for steel and aluminum will have little immediate effect on expansion programs in either industry. Indications are that scheduled expansion will go ahead. End of tax amortization may be in sight. Office of Defense Mobilization is said to be studying a new approach to problem.

BUSINESS WATCHES TARIFF MANEUVERING — P. 23
State Dept. now has duty-cutting authority, will meet foreign nations next year to swap concessions to promote world trade. Business will be able to tell two government agencies how it feels. Requests to testify must be made by Oct. 17. Hundreds of metal and metalworking products are on list for proposed tariff cuts.

LOOK BEFORE YOU LOCATE NEW PLANTS — P. 24
Plant location is important costwise. Labor, power, fuel and water needs must be studied. Tax situation is important in moving into a new community. Labor availability is not only factor. Community must be able to attract skilled workers without conflict. Low labor costs in some areas are sure to rise. Power, freight costs, water supply are just a few factors that require expert advice.

BUSINESS FLYING BECOMING BIG BUSINESS — P. 27
More businesses are finding that it pays to invest in aircraft for their own use. But it's not confined to so-called big business. Small and medium-size outfits are getting into it in a big way. Company-owned and operated airplanes are outflying scheduled airlines in terms of flight hours and mileage.

IN METALWORKING

ENGINEERING & PRODUCTION

METHOD SOLVES PLANT AIRING PROBLEM — P. 59
Adequate winter and summer ventilation is often a problem in wide, low-roofed, modern one-story plants. While perimeter areas are comfortable, powered roof air exhaust units may not meet interior ventilation needs. A new technique involving reversed roof ventilators and adjustable diffusers can often help.

AUTOMATIC SCREW DRIVERS SPEED ASSEMBLY — P. 62
Diecast parts are being assembled faster and at lower cost at the Bendix Products Div., through the use of thread-cutting screws and automatic screw drivers. The method increases product quality by providing much stronger fastenings; reduces manufacturing costs by eliminating tapping and thread gaging.

HIGH-TEMPERATURE STAINLESS STEELS — P. 65
Tests on new stainless steels show that they have the properties needed for high-temperature uses. One of these, Crucible HNM, exhibits a wide variety of mechanical properties depending on the heat treatment applied. The best combination of strength and ductility is obtained with a solution temperature of 2000°F. The cooling rate is also a factor.

GALVANIZING LINE GIVES TIGHT COATINGS — P. 68
Carefully-developed processes and control features mark Wheeling Steel Corp.'s newest continuous strip galvanizing line. All built-in elements are designed for large tonnage output of tightly bonded zinc coatings. Low frequency induction melting keeps the main zinc bath circulating. Line sections for pre-fluxing and cleaning the steel strip work automatically.

CONVEYERS SIMPLIFY FORGING INSPECTION — P. 72
Trucking forgings from pickling to inspection operations at this plant required excessive handling, was slow and expensive. Conveyer systems now save trucking and allow easy rotation of the forgings right on conveyer hooks. Method has doubled inspection rates.

MARKETS & PRICES

WHY CADILLAC STAYS ATOP LUXURY FIELD — P. 36
GM's top quality division has big backlog of orders in advance of 1956 production. Dealers thrive on prestige, count on high ratio of cash deals. New models will have 285 hp with Eldorado over 300. Ford price policy of 5 pct increases should set pattern for industry. Consumer gets break in lower cost of extras.

WHY WESTERN STEEL MUST PUSH EXPANSION—P. 45
Some 30 million more population expected by 1965. Steel demand will grow from buildings and services to supply population growth. Many steel products now made elsewhere can be made in West if steel capacity continues to grow. Harvey plans aluminum capacity.

MACHINE TOOLS MAKE FINE AUGUST SHOWING—P. 47
Early estimates place August machine tool sales at well over $60 million. Many builders had looked for a sharp dip, with the big show coming up, and the figures were a pleasant surprise. Hopes were voiced that the industry might be developing a new sales stability and getting away from "feast or famine" conditions.

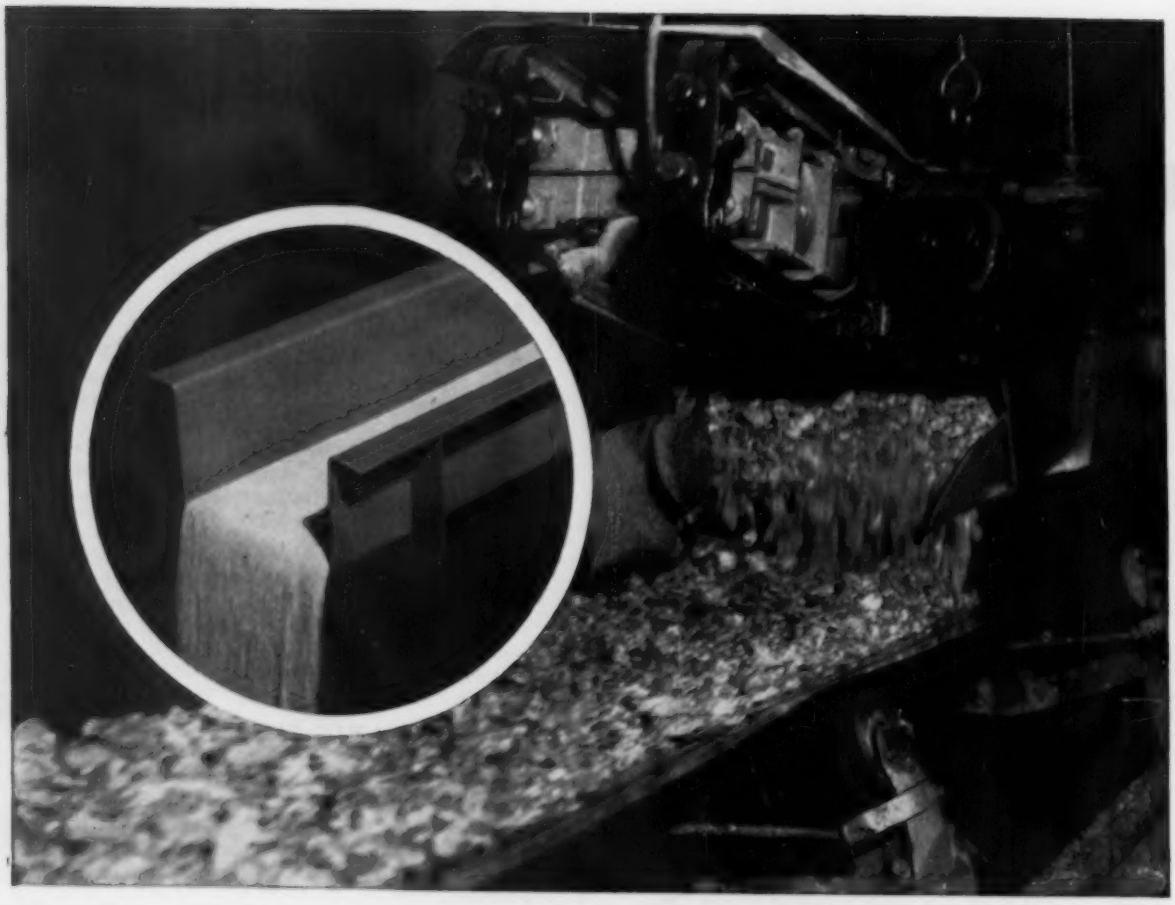
DON'T LOOK FOR STEEL MARKET TO EASE — P. 103
Talk that the steel market will ease soon is just plain wishful thinking. Between now and end of the year it will get tighter—if that's possible. There just isn't enough steel to go around. And the trouble starts at the ingot phase of production. Incoming orders exceeded capacity during August and September. And the outlook for 1956 is for continued strong demand at all levels.

U.S. SET TO MOVE ON COPPER SITUATION — P. 110
Representative Patterson's food-for-copper plan is unworkable but at least it points up the fact that possible solutions are being considered. More likely to succeed is the proposed 5 pct tariff reduction which is set for open debate October 31.

NEXT WEEK:

HOW TO GET MORE FOR YOUR STEEL DOLLAR
Getting the most for the steel dollar is a major challenge to metalworking plants. It takes close cooperation between purchasing, production and engineering; adherence to two basic rules: 1. Keep steel extras to a minimum. 2. Select steels best-suited to both processing and end-use of the product. Here's the how of it.

HOW IS DELAWARE VALLEY METALWORKING DOING?
Opening of the Fairless Works near Philadelphia was seen as a shot in the arm for metalworking in the area. Has the expected expansion wave followed? What does the region offer metalworking? Next week's report goes into these questions, telling what's happened in the Delaware Valley and how the future looks.



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Balanced vibration in the Jeffrey system matches electrical frequency to natural mechanical frequency of the driven equipment. This makes the system highly economical to operate, since all available energy does useful work. It is easy to control, safe, quiet and dependable. Vibration is scientifically isolated within the conveyor.

Jeffrey's years of experience with conveying problems enable us to furnish systems exactly right for each particular task. Catalog 870 describes the complete line of Jeffrey Vibrating Equipment. For a copy, and for help on your conveying problems, write The Jeffrey Manufacturing Co., Columbus 16, Ohio.

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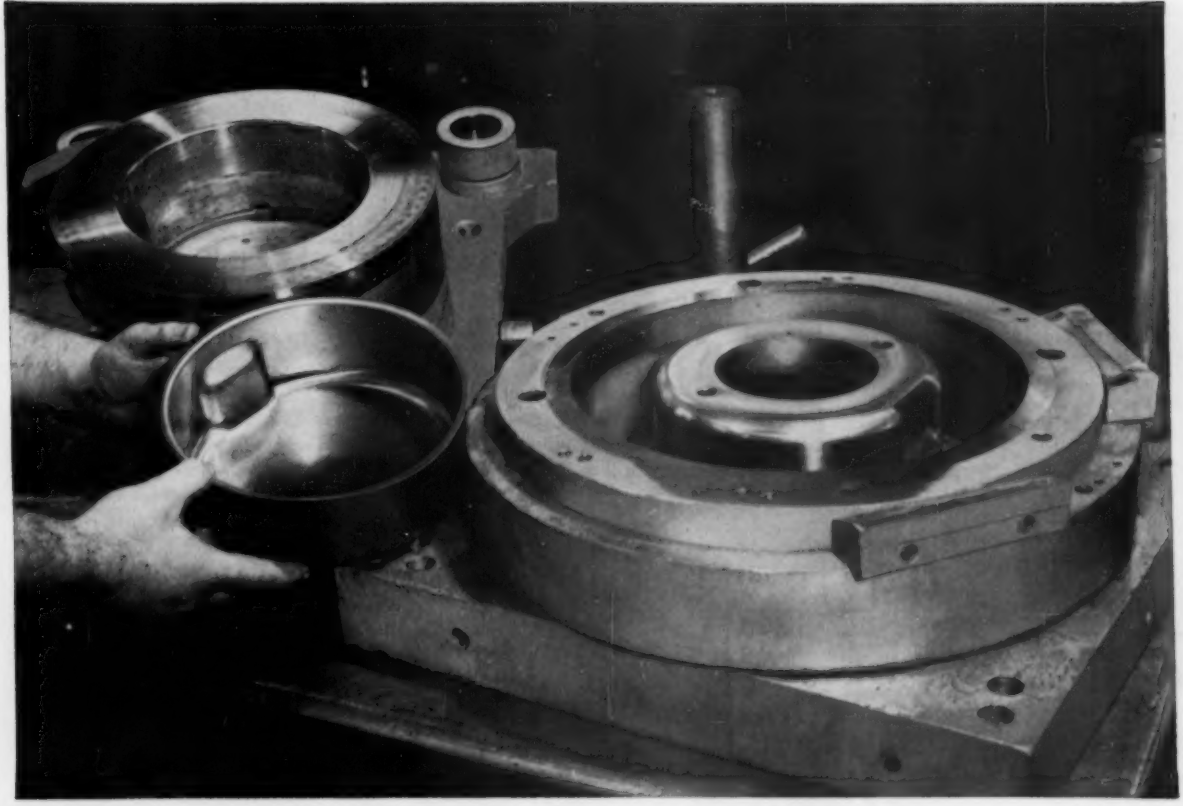
Where to Get



General Electric Department keeps blank and deep draw rejects under 3% with Graph-Mo® tool steel die

AIR chambers for General Electric Swivel Top Cleaners require a 3¼" deep draw. Yet they have to be stamped out rapidly with a minimum of rejects to keep up with production requirements. General Electric Vacuum Cleaner Department in Cleveland, Ohio, turns out an average of 333 air chambers per hour with less than 3% rejects by using a Graph-Mo® tool steel die.

Rejects are held down because Graph-Mo tool steel has a unique structure, diamond-hard carbides, plus unusual ability to retain lubricants on the wearing surface. This prevents excessive scuffing and galling even in tough draws like this.

Result: The Graph-Mo steel die wears extremely well. Many users report that Graph-Mo steel outwears other tool steels 3 to 1.

Machining is fast because Graph-Mo steel machines 30% easier than conventional tool steels. And it has uniform response to heat treatment, completely eliminating distortion.

Graph-Mo is only one of four graphitic tool steels developed by the Timken Company. For more information about all of their uses in dies, punches, gages and machine parts, send for the new 10th edition of "Timken Graphitic Steel Data Book". Write to: The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH

SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS TUBING

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in a Hurry

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You'll find that Armco Stainless Distributors know their business. All have mill-trained salesmen who will be glad to work with you in selecting the right grade. They have the latest Armco literature and fabricating information. It's available to you for the asking.

Look over this list of Armco Stainless Steel Distributors. There's probably one in your own "back yard." Keep him in mind the next time you need stainless.

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Indexed in the Industrial Arts Index and the Engineering Index.

ABP NBP

Special Editorial

See Page 21

Editorial:

Is the Russian Boot Pinching?

◆ THE RUSSIANS are succeeding in selling the idea that they are a top level power and a legitimate group to do business with. Russia is a top level power. Whether her leaders are legitimate in the broad sense of the word has yet to be proven.

Latest to fall for the Russian line appears to be West German Chancellor Adenauer. He argues that the Russians need time to solve internal economic and social trouble. He stresses the fact that Russia is a big world power; that is partly why he agreed to diplomatic relations with Russia.

Let's translate that into plain English. The Communists control 800 million of the world's people. By conquest, deceit or by violation of their word the Reds have taken over countries and people and put upon these nations an iron grip of dictatorship. Are we now to give them time to consolidate these "gains"?

Are we to give them time and help them solve some of their troubles; troubles that arise from people under their control who have no liking for them or for Communism? Are we to become accessories "after the fact"?

Taken literally Dr. Adenauer's statement seems to mean that free nations ought to be quite happy with the status quo. Perhaps neutralization of Austria and the Red warmth toward Tito (and vice versa) should not bother us. We should take into account the "reality" of the Russian power.

By seeing things as the Reds want us to see them we will help them to cut their armament costs. They then can build up their country and their satellites to a better economic and social plane. They can keep what they have; soon no one will remember how they got it.

Dr. Adenauer confirms that the Russian boot is pinching. The Reds are smart enough to try to get their enemies to help relieve the pressure.

We are to make things easy for Russia and her "allies" until they get in better shape. Later on we or our children may pay for such leniency or coddling.

Let's not be naive enough to give the Russians such a breather. Let's remain so strong there is no question of our power. And let's allow the Russians to solve their own internal "problems"—if they can.

Tom Campbell

EDITOR-IN-CHIEF

One buyer tells another...

"You'll enjoy doing business with Lamson & Sessions"

Did you ever stop to wonder why you patronize a particular store, restaurant or barber shop in preference to all others?

Perhaps it is habit; or maybe convenience. But chances are the main reason is because you *like* the people who serve you. It's a pleasure to do business with them.

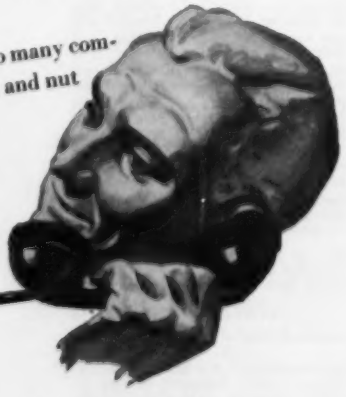
Just out of curiosity we asked several of our customers of long standing the reasons behind their year after year loyalty to Lamson & Sessions.

Of course, we received a variety of answers, but the reason that cropped up most frequently was: "Because we *enjoy* doing business with you."

Naturally that made us feel pretty good. Our people *do* try to give every customer an extra measure of attention over and above the requirements of common courtesy.

All else being equal, perhaps that's why year after year, so many companies prefer to call on Lamson & Sessions for all their bolt and nut requirements.

You, too, can enjoy this kind of business relationship.



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dear editor: *letters from readers*

Anodizing

Sir:

I have just read with a great deal of interest "Plating Machine Design Head to High Anodizing Rates," by Paul Pearson, in your June 30th issue.

I was wondering what the concentration of sulphuric acid was in the anodizing tank. Another point was regarding the baths. The author said "all tanks are made of ¼-in. steel plate except the hot water seal tank which is lined with stainless steel." Is the sulphuric acid tank not completely lead lined? *J. P. Simpson, Chief Chemist, Car Div., Canadian Car & Foundry Company, Ltd., 621 West Craig St., Montreal 3, Canada.*

The standard of 15 to 25 pct sulphuric acid by weight is used. The acid tank is lead lined.

The hot water seal tank which we said is lined with stainless steel, is actually a stainless clad tank.—Ed.

Alkaline Solutions

Sir:

In your July 28th issue we read with interest your article "Alkaline Solutions: What To Use For Effective Cleaning," by J. B. Mohler.

We are not quite clear, though, as to the direct analytical procedure given on page 62, paragraph 6, under the heading, "Full Scale Test Best." According to my interpretation of this procedure, three titration figures are cited, but only two end points are clarified. As this procedure is new to us and would be helpful in our determinations, we would appreciate a more extensive explanation on this particular point. *J. G. Newman, Chief Chemist, The Hobart Manufacturing Co., Troy, Ohio.*

You're a keen observer!

That paragraph should have read something like this: "...done with a pH meter. The first end-point measures all of the NaOH and one-third of the Na_3PO_4. The second end-point measures NaOH, one-third of the Na_3PO_4 and one-half the Na_2CO_3. The last end-point measures NaOH, two-thirds of the Na_3PO_4 and all the Na_2CO_3. Each chemical . . ."—Ed.

Battery Powered Instrument

Sir:

A news item on page 45 of your June 2nd issue specified that a midwest plant has built its own battery powered, portable instrument to get a quick accurate answer on machine tool linear feed rates.

We would appreciate getting the name and address of this plant, or details of the instrument, as we are interested in building or purchasing an instrument of this type. *W. O. Becker, Ass't. to the Chief Industrial Engineer, Mergenthaler Linotype Co., Park Ave. and Ryerson St., Brooklyn 5, N. Y.*

More details on the battery powered, portable instrument may be obtained from National Automatic Tool Co., Richmond, Ind.—Ed.

"100 Years"

Sir:

I am sufficiently enthusiastic to advise my son to become intimately acquainted with that issue; he is the fourth generation in my family in the "iron business!" *J. W. W. Sullivan, Metallurgical Engineer, American Iron and Steel Institute, 350 Fifth Avenue, New York.*

I have found it very interesting and informative. *E. B. Germany, President, Lone Star Steel Co., Dallas.*

I would like to take this opportunity to tell you that I consider this one of the finest ever put together. *L. M. Parsons, Vice President, United States Steel Corp., 1625 K St., N. W., Washington.*

This is one of the most magnificent anniversary publications I have ever seen. *George Havas, Vice President & General Manager, Kaiser Engineers, Div. Henry J. Kaiser Co., Kaiser Bldg., Oakland 12, Calif.*

MONEL • NICKEL • COPPER • ALLOYS

THIN STRIP

±.0004" is run-of-the-mill

Typical of the care that assures absolute uniformity in all Somers THIN STRIP is this 4-high mill equipped with the latest electronic gages and controls. Here thickness is constantly checked throughout the run, and maintained within ±.0004" or less on gages from .010" down. The slightest variation may be instantly corrected.

No matter how exacting your requirements may be for thin strip metal, you can depend on Somers quality control, equipment and experience to guarantee uniform quality every time—all the time.

Somers Brass Company specializes in rolling nickel and its alloys from .020", and copper and its alloys from .012" both down to .00075".

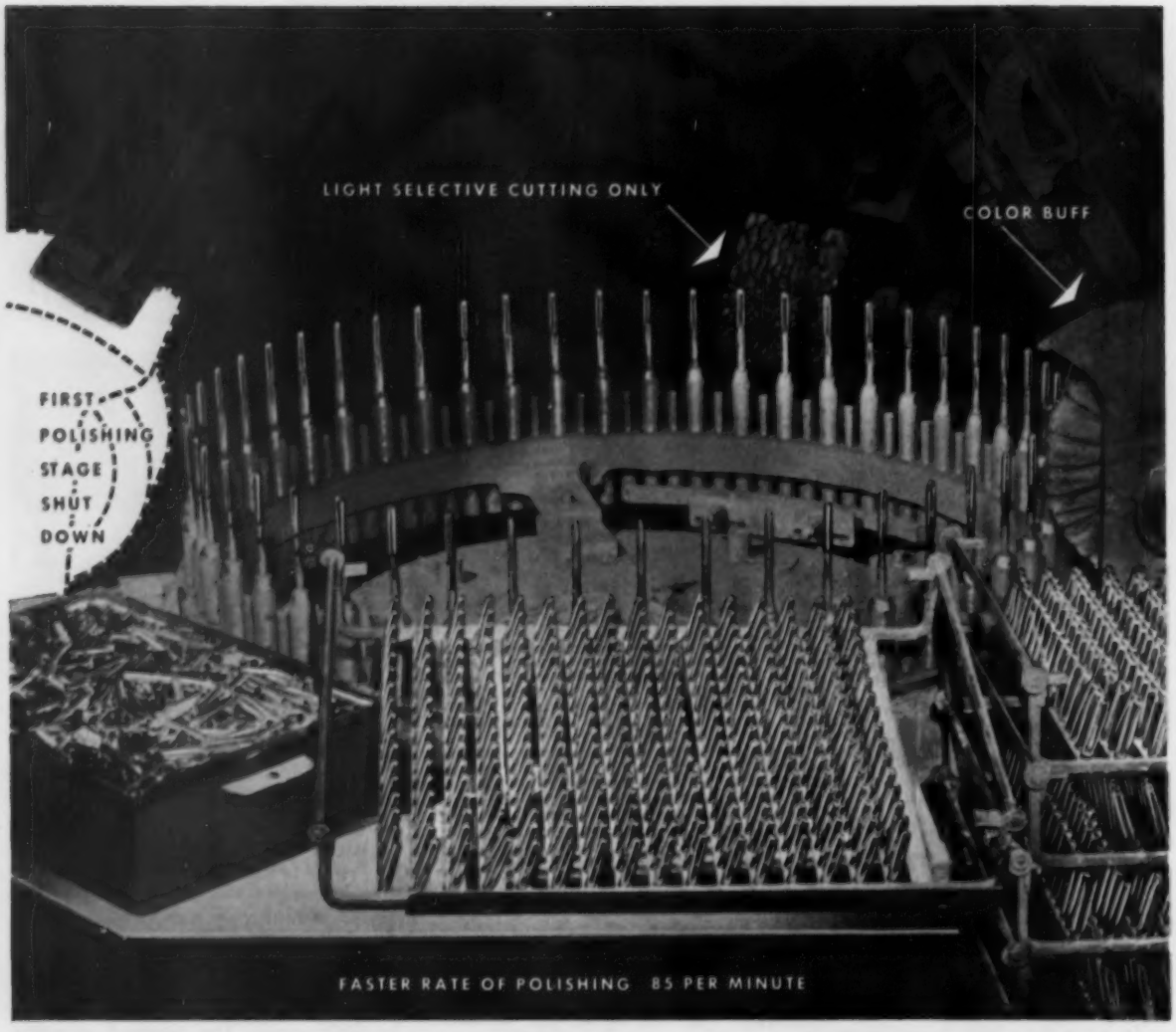
If you now have, or anticipate, a problem with exacting standards of this strip metal write:

FOR EXACTING STANDARDS ONLY

Somers

Somers Brass Company, Inc.

WATERBURY, CONN.



How Formbrite cuts polishing costs 40% for JARCO

Pens, pencils, and lipstick cases have to be attractive to sell—yet they must be able to take a beating in daily use. The Jarco Metal Products Co., which specializes in drawing metal parts for these and such other products as miniature flashlight cases, and similarly formed products, tried Formbrite,® Anaconda's new drawing brass, shortly after it was announced to the trade.

Superior polishing characteristics combined with excellent drawing properties, plus hardness and scratch resistance, sounded ideal for Jarco products. Formbrite has proved an excellent pressroom material. The uniformity of temper from batch to batch eliminated shutdowns for adjustments in their battery of 12-plunger Waterbury-Farrel presses, which can produce up to 500,000 pieces a day.

It's in the polishing room where Formbrite has really paid off. Jarco uses 50- and 98-spindle continuous-loop machines having two cutting stages and a final color buff stage. The first cutting stage is shut down completely. The second stage is used for only a partial or selective cut in certain areas of the cap—because of the extremely deep draw. The color buff stage does most of the work. The savings in polishing run about 40%, according to David Roberts, vice president.

Formbrite is a premium product at a nonpremium price. Find out for yourself how its superfine grain, excellent drawing properties, strength, and scratch resistance can help you make a better product at lower cost. Write for Publication B-39. Better yet, ask about a sample or a trial batch. Write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

Formbrite

FINE-GRAIN DRAWING BRASS

an ANACONDA® product

made by

The American Brass Company

fatigue cracks

by William M. Coffey

Anybody Seen This Man?

Mr. W. G. Patton
Asst. Technical Editor
The Iron Age.
100 East 42nd St.
New York 17, N. Y.

Dear Mr. Patton:

In the June 16 issue of IRON AGE, *you reviewed a new shell molding machine, developed by C & S Products Co., Detroit. On page 93 of this article, there is a picture of an operator at this machine. I believe this operator is a friend, with whom I was in the service. His last place of employment was the Hood Rubber Co., in Boston. Is there any possibility that this could indeed be him? I would appreciate any information you could furnish concerning the identity of the operator or the location in which the picture was taken.*

Your very truly,
L. M. Hymes
Technical Services Lab., Dept. 562
International Business Machines Corp.
South Road, Poughkeepsie, N. Y.

All right, you men, let's help friend Hymes out. Who knows this bird? Write direct to the "Iron Age Missing Persons Bureau," c/o Coffey, who's been missing for years.

Puzzlers

A clock strikes six in 5 sec. How long does it take to strike twelve? Easy. 11 sec. Too easy. And the winners in 1 minute 19 secs. of the ninth round Austin Phelps, U. S. Engineers, Omaha; ole Joe Brugman; Roy Millenson, Director Washington Bureau, Julius Klein Public Relations; Jim Mull, The North American Manufacturing Co., Cleveland; Fred P. Boulais, Acme Steel Co., Chicago; is Mr. Darcey slipping?

New Puzzler:

Friend Wallace A. Sawdy, very kindly sends us another good 'un.

X and Y are two circles. The number representing the area of X plus the number representing the diameter of Y adds up to 9058. The diameter of Y is equal to three times the diameter of X plus 1,000. What are the diameters of the two circles?

Women

Special to The Iron Age—Women's Dept.

Athens, Tenn.—Lee McDowell, forty-six, was charged with assault and battery after his wife told officers he worked her in the fields all day and chained her to the bed at night.

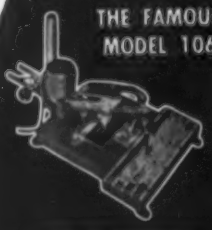
Sheriff's Deputy W. R. Reynolds said he asked McDowell why he chained up his wife and that he replied, "I was afraid she'd get snake bit."

Who's Confused?

News-Markets Editor John Delaney had just swung onto the New Jersey Turnpike one day recently when his car passed by a spanking new station wagon, painted a beautiful blue and brightly lettered. In bold face lettering it stated: "Confusion, Inc." on the station wagon's side. It took the startled editor several miles before he settled down.

unique in design — rugged in construction

GREEN PANTOGRAPH ENGRAVERS



The three-dimensional bench Model 106 cuts costs — engraves, routs, models and profiles, giving you expert results even by unskilled workers.

THE NEW HEAVY-DUTY MODEL D-2

The Model D-2 heavy-duty two dimensional Pantograph is a precision machine with a multitude of new features. Open on three sides, it permits complete freedom for engraving, milling, profiling large panels (up to 30" in diameter) or bulk pieces. Single, micrometer adjustment controls vertical depth of cut, automatically adjusting copy table with pantograph. Range of reduction ratios from 2-to-1 to infinity! Vertical range over 10 inches!

For complete information, write to:

GREEN INSTRUMENT COMPANY
365 Putnam Ave. Cambridge, Mass.

Export Agent—Frothom Co., 33 W. 42nd St., New York 36
See us, Booth 548, Product'n Engin'g Show, Navy Pier, Chi.

Houghto-Quench*

makes that last step pay off in heat treating...

Like base runners, your heat treaters bank a lot on the *last step*. In steel, it's the crucial quench!

Your steel selection is carefully made. Temperature's right on the nose. Atmosphere is okay. With your costly processing risked on the quench, doesn't it make sense to entrust that critical "last step" to the best quenching oil you can get?

Specify Houghto-Quench Oil for the speed and hardening safety you want—for the uniformity that's essential. It's the *original* quenching oil to be *fortified* for the stability you want and need!

Ask the Houghton Man to show you how Houghto-Quench increases heat treating effectiveness—with lower cost per ton of steel quenched. Write for latest "Quenching Handbook" too—E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.

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Ready to give you on-the-job service . . .

* QUENCHING SPEED TO FIT YOUR NEED

dates to remember

OCTOBER

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS—Fall general meeting, October 11-15, Morrison Hotel, Chicago. Institute headquarters are at 36 W. 46th St., New York City.

FOUNDRY EQUIPMENT MANUFACTURERS ASSN. — Annual meeting, October 13-15, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 1008 Engineers Bldg., Cleveland.

CONVEYOR EQUIPMENT MANUFACTURERS ASSN. — Annual meeting, October 15-18, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at No. 1 Thomas Circle, Washington, D. C.

EXPOSITION

Philadelphia, October 17-21. NATIONAL METAL CONGRESS AND EXPOSITION.

AMERICAN COKE & COAL CHEMICALS INSTITUTE—Annual meeting, October 17-18, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 711 Fourteenth St. N. W., Washington, D. C.

AMERICAN GAS ASSN.—Annual convention, October 17-19, Los Angeles. Association headquarters are at 420 Lexington Ave., New York City.

AMERICAN INSTITUTE OF MINING & METALLURGICAL ENGINEERS—Annual fall meeting, Institute Metals Div., Oct. 17-19, Adelphia Hotel, Philadelphia. Institute headquarters are at 29 W. 39th St., New York City.

AMERICAN WELDING SOCIETY—National fall meeting, October 17-21, Philadelphia. Society headquarters are at 33 West 39th St., New York City.

RAIL STEEL BAR ASSOCIATION — 74th meeting, October 24-25, Sherman Hotel, Chicago. Association headquarters are at 38 South Dearborn St., Chicago.

STEEL FOUNDERS' SOCIETY OF AMERICA—Annual fall meeting, October 24-25, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters are at 606 Terminal Tower, Cleveland.

PORCELAIN ENAMEL INSTITUTE — Annual meeting, October 26-28, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 1346 Connecticut Ave. N. W., Washington, D. C.

METAL TREATING INSTITUTE — Annual meeting, October 29-31, Sheraton Hotel, Chicago. Institute headquarters are at 271 North Ave., New Rochelle, N. Y.

Keep your eye on Buckeye

these

NEW "L" SERIES

Reversible and Non-Reversible

SCREWDRIVERS and NUT RUNNERS

Less than 9 inches long . . . weighing well under 2 pounds . . . requiring only a limited air supply . . . these NEW Buckeye L Series screwdrivers and nutrunners are miniature in every respect—except power.

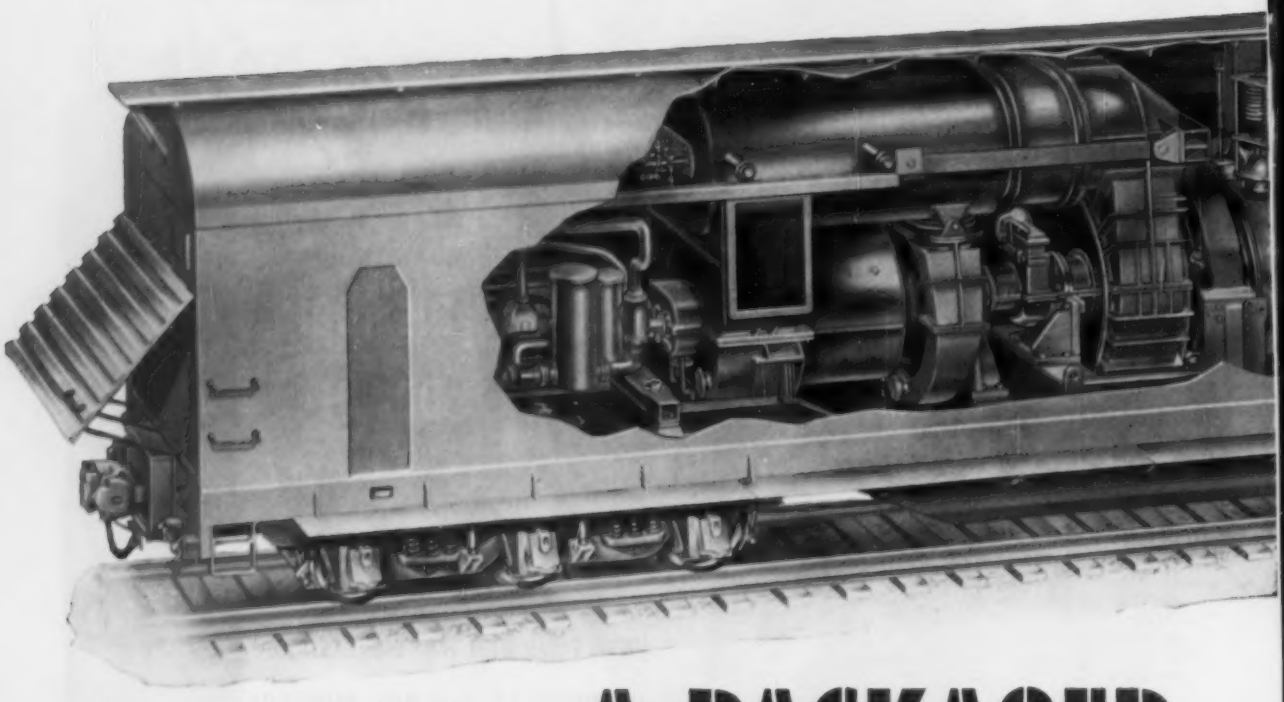
Into these pocket-size tools is packed all the quiet air power you'll ever need for any fastening job within tool capacity. You can choose adjustable or positive clutch . . . lever, lock button or offset handle . . . in 3,000 or 1,800 RPM speeds.

Designed and built for full-scale production use, Buckeye L Series tools make power tools practical for any fastening operation, even if you use them only intermittently. All the facts will be found in Catalog G-10—Write NOW for your copy.

Buckeye Tools CORPORATION
DIVISION 11 • DAYTON 1, OHIO
IN CANADA: Joy Manufacturing Co., Ltd., Galt, Ontario

producers of the world's first successful rotary air tools

Revolutionary Clark development in mobile power generation



A PACKAGED

KEY FEATURES

1 **COMPLETELY SELF-CONTAINED**
Requires only connection to fuel source and electrical load.
No water nor outside power needed.

2 **ONE-MAN OPERATION**
Simple, pneumatic controls. Complete, built-in, dead front switchgear.

3 **MOVED AT HIGH SPEEDS**
Can be hauled on regular passenger or freight train service. All components specifically designed for mobile operation. Special, heavy duty car.

4 **QUICKLY PLACED IN SERVICE**
No site preparation required. Operates on any reasonably level track.

5 **3-POINT SUPPORT**
Car flexing does not affect alignment of power unit.

6 **DUAL FUEL OPERATION**
Burns wide range of liquid or gaseous fuels simultaneously or individually.

7 **SPLIT SHAFT DESIGN**
No alignment problem. No step-down gears between turbine and load. No physical connection between turbines.

8 **THERMO-ELASTIC DESIGN**
Hot parts expand without stress. No bearing misalignment.

9 **LONG LIFE — LOW TEMPERATURE**
Minimum blade life of 100,000 hours.

10 **AIR COOLED — NO WATER REQUIRED**

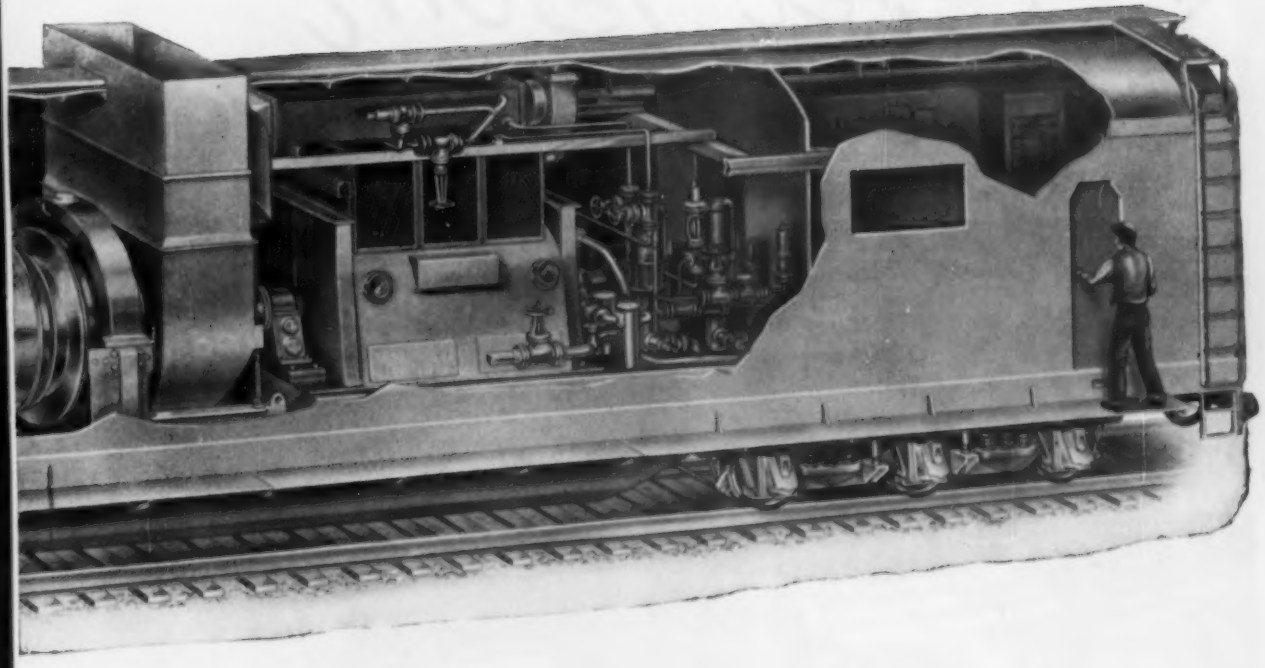
11 **DUAL MULTI-STAGE HIGH AND LOW PRESSURE TURBINES**

12 **LIFETIME SINGLE COMBUSTION CHAMBER**

13 **MINIMUM RADIATION**
All exposed surfaces cool enough to touch.

14 **FLEXIBLE ELECTRICAL CHARACTERISTICS**
Dual frequency. Operates in parallel with existing facilities or independently.

15 **UNUSUAL ACCESSIBILITY**
All parts readily accessible for rapid inspection and servicing.



5500 KW POWER PLANT

Completely self-contained in a single R.R. car

The Navy ordered it. Clark built it — a packaged 5500 KW mobile power plant completely self-contained in a single railroad car, for emergency use by the Bureau of Yards & Docks.

Featuring a completely new, Clark designed combustion gas turbine, driving a synchronous generator, the unit is specifically designed as a mobile emergency power station to supply a substantial block of power on short notice. Clearly, this is a development that offers many opportunities to the armed forces, civil defense, public utilities and industry.

Furthermore, the unique gas turbine which drives the generator is extremely well suited as a matching driver for centrifugal compressors serving the gas transmission, refining, process and other industries.

Clark engineers will gladly furnish details and discuss specific applications with you. Complete brochure mailed on request.

CLARK BROS. CO. • OLEAN, N. Y.

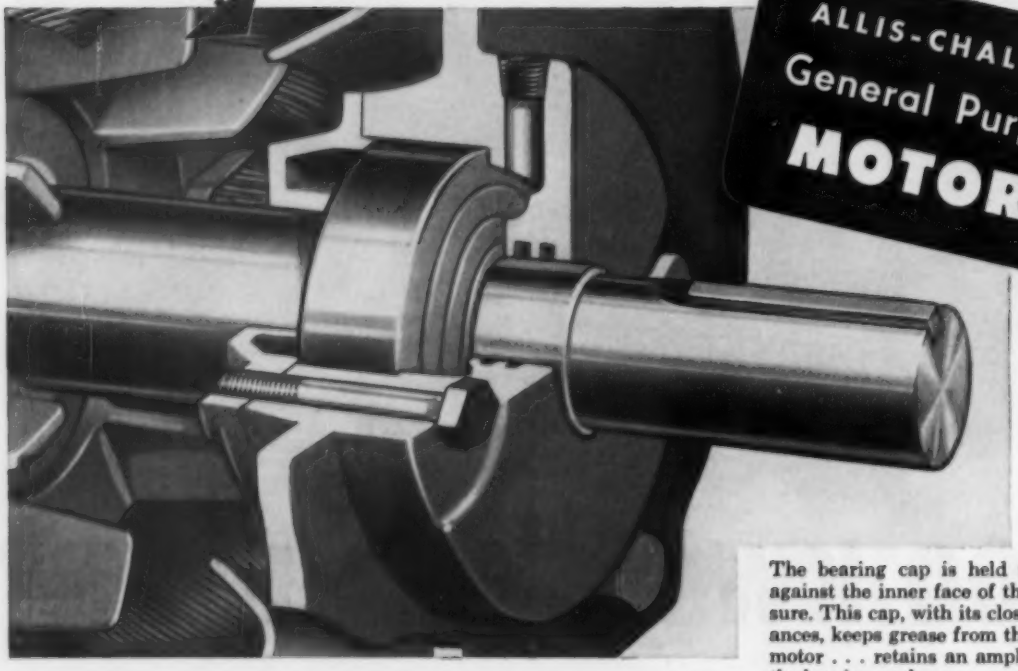
Offices in Principal Cities throughout the World

CLARK

ONE OF THE DRESSER INDUSTRIES

TURBINES
ENGINES
COMPRESSORS

Get Both
bearing features



The bearing cap is held tightly in place against the inner face of the bearing enclosure. This cap, with its close running clearances, keeps grease from the interior of the motor . . . retains an ample supply within the bearing enclosure . . . protects the grease and the bearing against contamination from dirt and moisture.

At the outer side of the bearing, double labyrinth seals keep grease in, also keep dirt out. What's more, large grease reservoirs act as additional dirt traps.

fully enclosed and protected
. . . yet
easy to grease

You can lubricate the bearings without dismantling the motor. Pipe-tapped holes in the bearing housings at two points provide both means for inserting new grease and a means of flushing out old grease.

Look for the extra bolts on the end housing . . . the sign of greater value. Ask your Allis-Chalmers representative or Authorized Distributor to show you a cutaway section of this maintenance-cutting design. Or write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 51B6210.

A-4608

ALLIS-CHALMERS

The Iron Age Newsfront

More Aluminum In '56 Cars

Many extra pounds of aluminum will be used in next year's cars. Several automakers are replacing large gray iron castings with aluminum. Its use in grilles is also increasing. Considerable experimental work has been done on colored aluminum roofs but at least one producer has decided to use steel. So far, anodized finishes on forged aluminum parts have stood up very well under severe service conditions.

Flood Relief Anonymous

While the Russians made a big fuss about their $25,000 contribution to Red Cross disaster relief, American industry contributed far greater sums—most of it anonymously. One steel company, for example (with no plants in the Pennsylvania-New England flood stricken areas), contributed three times that sum.

Reactors Outrun Atomic Subs

Navy and Atomic Energy Commission officials won't admit it, but development of reactor engines for subs is outpacing construction of vessels. The second atomic sub, the Sea Wolf, has a power plant vastly improved over the one installed in the Nautilus. Even this one has been superseded by a new design dubbed Submarine Advanced Reactor (SAR). But this too will probably be outmoded before all six of the planned atomic subs are constructed.

Metallurgists Take Second Look

A metallurgical turnabout will be accomplished soon in the form of a technical report on low carbon, martensitic stainless steels. Free ferrite—once the nightmare of stainless heat treaters—will now be heralded as an asset. It has been found to minimize susceptability to stress corrosion cracking.

Custom Heat Treated Rolls Pay Off

Individualized heat treatment of rolls has replaced mass heat treating practices where between 300 and 400 tons of rolls would be treated at one time. High quality in rolls is a must since one failure in a modern mill can cause staggering losses. According to mill estimates, the average cost of downtime due to roll failure can easily hit $1000 per minute.

Diecast Blocks Take Another Big Step

New techniques that make it practical to diecast parts up to 75 lb are expected to bring the diecast automotive engine block a step nearer to reality. An official of a leading automobile firm says it is feasible to look forward to blocks diecast from an aluminum-zinc alloy. Their weight would be less than 100 lb.

Nylon Doesn't Scratch

One firm rolling prefinished brass strip ran into quite a problem with marring and scratching by the steel rolls it was using. By switching to nylon rolls, not only was the problem solved, but the savings in rejects have been substantial.

Farm Equipment Sales Appear Healthy

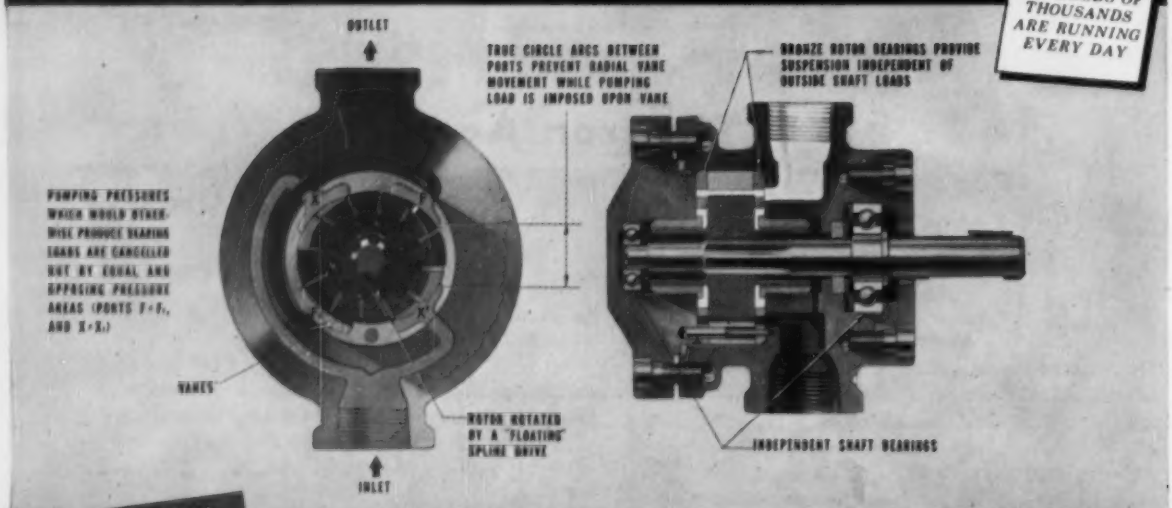
Look for a big spurt in farm equipment sales which are up about 25 pct over the same period last year and are expected to keep up through this year and well into next year. Right now, new models (25 tractors alone) are catching the eyes and purses of farmers who find that greater mechanization means higher productivity, lower production costs and more net profit. It is estimated that this will be a $2 billion sales year and that next year will be equally good.

Copper Prospecting Made Easy

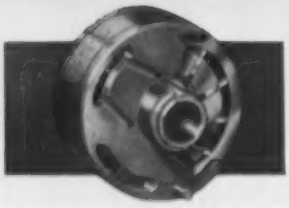
You still have to dig to mine copper but the problem of where to look is now being solved by an instrument called an aerial electromagnetometer. The instrument, mounted in an airplane, can indicate graphically the presence of sulphides which may contain copper as well as zinc and lead. Also, it rejects ore barren areas. The speed of the plane indicates the time saving advantages.

Question:
Why are VICKERS Balanced Vane Type Pumps the most widely used oil hydraulic power pumps?

HUNDREDS OF THOUSANDS ARE RUNNING EVERY DAY


OUTLET
TRUE CIRCLE ARCS BETWEEN PORTS PREVENT RADIAL VANE MOVEMENT WHILE PUMPING LOAD IS IMPOSED UPON VANE
BRONZE ROTOR BEARINGS PROVIDE SUSPENSION INDEPENDENT OF OUTSIDE SHAFT LOADS
PUMPING PRESSURES WHICH WOULD OTHERWISE PRODUCE BEARING LOADS ARE CANCELLED OUT BY EQUAL AND OPPOSING PRESSURE AREAS (PORTS 1-1, AND 2-2)
VANES
ROTOR ROTATED BY A "FLOATING" SPLINE DRIVE
INDEPENDENT SHAFT BEARINGS
INLET

Answer:
Because of their SUPERIOR PERFORMANCE and MANY OTHER BENEFITS for the user.



For more than two decades, the Vickers Balanced Vane Type has held the leading position among hydraulic power pumps . . . growing steadily in popularity. The various models (see below) are *the most widely used of all pumps in oil hydraulic service.*

Above is the pumping cartridge which is one of this pump's distinctive features. The many advantages listed at the right merit the thoughtful attention of anyone concerned with the selection and use of oil hydraulic pumps.

VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

1420 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices • ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N. J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER • IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto

COMPLETE HYDRAULIC BALANCE—Each inlet and outlet port is balanced by another equal in size and radially opposite . . . pressure-induced bearing loads are thus eliminated. Pressure-balanced porting plates maintain ideal running clearances.

FLOATING SPLINE DRIVE—Rotor is driven by a "floating" spline. Rotor and shaft have separate bearings . . . avoiding strain from drive misalignment.

TRUE-CIRCLE CAM ARCS between ports prevent radial vane movement while pumping load is imposed upon vanes. Wear between vanes and rotor is thus practically eliminated.

ABILITY TO TOLERATE DIRT—Clean oil is of great importance in a hydraulic circuit; but, in spite of care, dirt sometimes gets in. The Vickers Vane Type Pump will pass a reasonable amount of dirt without trouble and without grinding it up.

REPLACEABLE CARTRIDGE—Cartridge (illustrated above left) contains all pumping parts that move . . . none contact the housing. Working parts can be removed and inspected without disconnecting piping or drive coupling. Replacement cartridge kits are available and pumps need not be sent to the factory for repairs. Pump capacity can be changed by simply changing cartridge in the field.

HIGHER EFFICIENCY—Tests prove exceptionally high volumetric and overall efficiency . . . not only when pump is new but also after long service.

AUTOMATIC WEAR COMPENSATION—Vanes are held in contact with the cam ring by centrifugal force and hydraulic pressure. If wear occurs, vanes revolve in a slightly larger orbit without appreciable change in performance.

MINIMUM MAINTENANCE—Hydraulic balance . . . floating spline drive . . . independent bearings . . . automatic wear compensation eliminate the most important causes for maintenance and repair.

TEMPERATURE ADAPTABILITY—Correct running clearances are automatically maintained which compensate for wide variation in oil viscosity resulting from temperature variation.

LONGER LIFE—The numerous features mentioned above that keep down maintenance also contribute to longer life. Then, a new cartridge completely rejuvenates the pump.

CONSTRUCTION SIMPLICITY is evident from the illustrations above. This simplicity is another reason for the superiority of Vickers Vane Pumps. For further information, ask for Bulletin 5002A.

7182

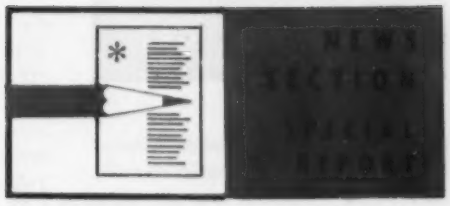
ALL MODELS HAVE THE VICKERS ADVANTAGES MENTIONED ABOVE

Single Stage. Pressures to 1,000 psi. Capacities to 55 gpm.

Two Stage. Pressures to 2,000 psi. Capacities to 55 gpm.

Double Pump—Two pumps for separate circuits driven by common shaft.

Two-Pressure Pump automatically delivers larger volume at low pressure and smaller volume at high pressure.



Keep An Eye On The Farm Market

Trend to farm mechanization is accelerating . . . Decrease in farm population and available acreage plus general population growth are forcing farmer to mechanize . . . Outlook good—By *D. G. Picinich.*

◆ HAVE YOU been down on the farm lately? Things are happening there that might affect your business. Mechanization, for one. The trend is accelerating. And it's good for the long term. Here's why:

- The modern farmer is a good business man. He knows the value of efficient, labor-saving equipment.
- Continuing decrease in the farm population forces the farmer to lean more heavily on machines.
- There are more mouths to feed in the U. S.—the steady growth in population has amazed and confounded the experts.
- Decrease in available farm acreage calls for better farm equipment and scientific agricultural improvements.
- The replacement market. Where once new equipment was bought as a substitute for manpower, emphasis today is on replacing machines with machines. Department of Agriculture says that in 1952 approximately 45 pct of new equipment was bought to replace obsolete and worn out machinery.

Outlook Rosy

Using the 1952 level as a base, it's estimated this year's equipment purchases will amount to over 53 pct for replacement needs, with the level rising steadily over the next five-year period. By 1960, replacement needs, in relation to the 1952 base, are expected to come to over 90 pct of new purchases.

What's the outlook for 1956? The farm equipment makers say it's good. Sales for first nine months of the current fiscal year are running at a pace equal to, or perhaps better than, the $2 billion annual retail sales level maintained by the industry for most of the past decade.

Big equipment fabricators such as International Harvester, Oliver Corp., and John Deere, report sales of their regular line products to domestic dealers and consumers are up 18 to 25 pct over the same period a year ago.

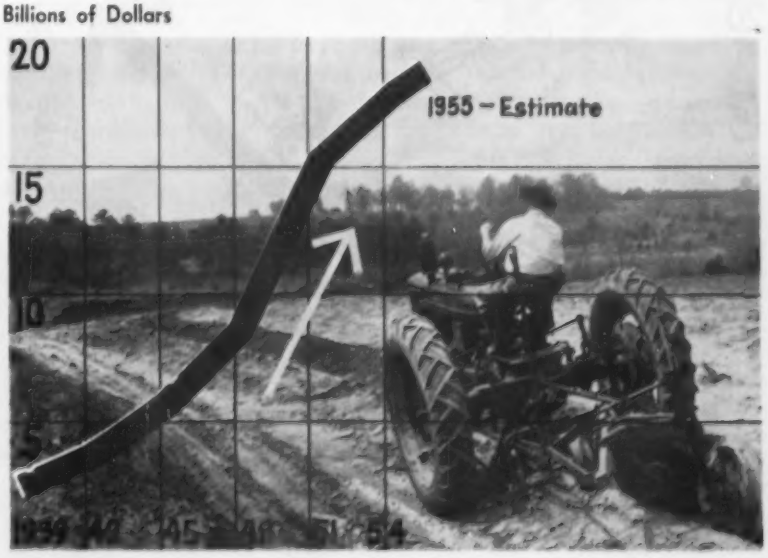
While not yet a boom, the sales uptrend is helping to offset the general decline in 1954 business, is spelling an end to manufacturers' inventories in both finished goods and raw materials. It's setting a pace which could mean a healthy sales picture for 1956—and several years to come.

Since the start of the year, the big line implement and tractor producers have been offering potential buyers a greater range of new models to choose from than has been the case in any recent year.

There's a current willingness on the part of many customers to invest this year in greater mechanization. With farmers' net cash receipts expected to be among the lowest by year's end of any year for over a decade, they're all for paring production costs as much as possible. Increased mechanization will help.

A third fact cited by industry people is the tractor and implement market which has been growing steadily stronger in the South. Land once worked mostly by sharecroppers and mules is now

Value of U. S. Farm Equipment



meeting more and more tractor tires, has been doing so in steadily increasing numbers over the past 10 years.

'55 Sales Are Up

International Harvester lists its retail farm implement and service parts sales for the first nine months of the current fiscal year at slightly over $130 million, as against $118 million for the same period a year ago. Farm tractor and service parts sales for the same period are listed at $145.3 million compared with $115.8 million last year, up 25 pct.

Oliver Corp. reports its net sales of regular line products for the nine months ended July 31 came to slightly better than $74 million, 25 pct over the same period a year ago. John Deere sales for this year's fiscal nine-month period are reported at $275 million as against $233 million for the same time a year ago, an upswing of 18 pct.

One industry source estimates that the total number of tractors on farms has increased by more than 100,000 since Jan. 1, with total estimated number of tractors on farms as of July 1 at 4.3 million. It's estimated that in the first six months of this year tractor production came to over 190,000 units, as against output of slightly better than 245,000 for the whole of 1954.

Bigger Variety

Major equipment makers are finding that specific data on farm population, size of farms, age groups of farmers, soil types and terrain of various parts of the nation is vital in pushing sales in today's market, in designing and producing new model equipment.

Harvester's most recent line of Farmall tractors, for instance, aims at widely diversified markets, incorporates models of from 9.7 belt hp up to 51 belt hp. Engines are designed for gasoline, distillate, kerosene, or liquid petroleum, as well as oil. Models include low profile units for orchard work, high clearance machines for the cane fields, tricycle-type tractors for row-crop work. The 400 model is available with an electric generator which makes the machine a mobile source of electric power anywhere on the farm.

Oliver Corp.'s late model designs in self-propelled combines, multipurpose trailer type crop sprayers, one and two row pull type corn pickers, and "Super" model tractor line, further highlight equipment makers' current selling pitch.

Gadgets Are Helpful

The John Deere Models "70" row-crop and standard Diesel tractors come equipped with "live" Powr-Trol for single lever hydraulic control of both integral and drawn tools.

One industry estimate is that by year's end, at least 25 new tractor models will be on the market. Unlike electronic and hydraulic luxury being built into passenger cars — power steering for tractors, improved and extended hydraulic systems, faster attaching and detaching of implements, new types of mountings, improved transmissions — to cite some of the new features—are being built-in to make farm equipment more versatile, more efficient power units.

A relative newcomer among farm equipment manufacturers, Ford Tractor & Implement Div., Detroit, foresees a big growth in farm implement mechanization within the next 10 years.

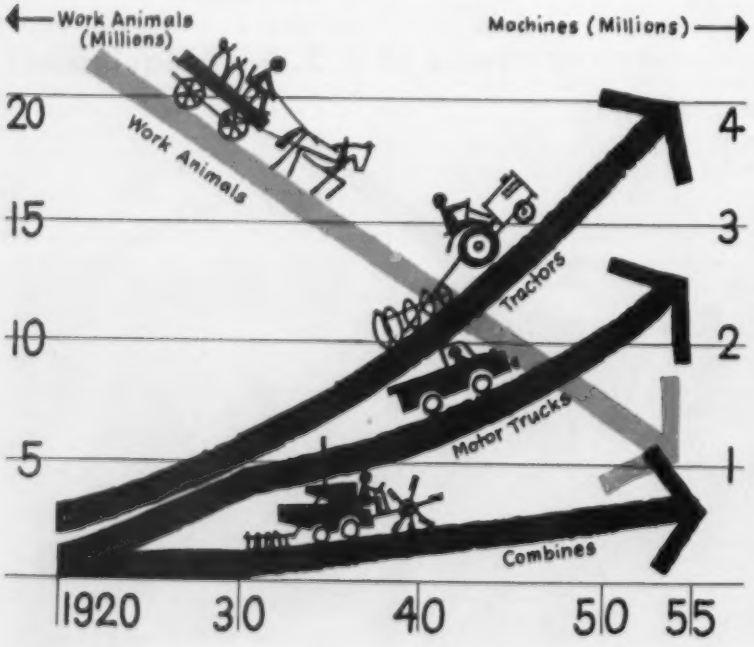
This year, Ford introduced 11 new tractor models. Previously the company had only one, 4-wheeled tractor and a variety of rear mounted implements. New models include three tricycle tractors. Along with tractors, Ford also brought out a complete line of front mounted implements.

Wages, Prices Rise

Two factors causing some concern to most producers are the current tightness of sheet, plate and bar on mill delivery schedules, and expected cost hikes in production for the next several years as a result of recent contract negotiations with the CIO United Auto Workers.

Most farm equipment manufacturers already have raised prices about 7 pct, and one of the biggest —Harvester is expected to follow suit shortly. The company's new three-year contract with the union, covering 18 plants, will cost an estimated $30 million annually.

Machines Replace Animals



GOVERNMENT

A special editorial

A Time for Clear Thinking

◆ PRESIDENT EISENHOWER'S illness is a serious personal loss and shock to American business. He is as beloved among industrialists as he is with the man on the street. Reactions have been tempered by the gravity of Mr. Eisenhower's personal misfortune.

But business and politics go on without the indispensable aspect of man. Even the President enunciated this theme in Denver a short while ago. So it is natural that there are questions of what will happen in Washington; what is the outlook for the Republican Party and what effect will the General's heart attack have on business.

Time will answer some of these questions. But it is clear that business will continue on an even keel with no strong adverse reaction. It also seems certain that the President will be advised by his doctors to take the greatest precaution possible in convalescing from his illness.

It is just as certain that businessmen who strongly support the present administration have had a major setback in their plans for the future. Few medical men would approve of the President's running for reelection after having had a "moderate" coronary thrombosis. Add to this Mr. Eisenhower's own remarks about his health in connection with running again and the picture would indicate that he will not run.

But for the time being it can be remembered that while President Eisenhower has been the strong leader—and will continue to be the leader of the Republican Party and the administration, he has had strong men to lean upon. He has been a great one for delegating authority. His sickness will not affect to any great extent the work and influence of his cabinet members who have shown a willingness and an ability to carry out the President's wishes.

The long range effect of the President's setback—and it may eventually turn out that it was a timely and beneficent warning—will be to enhance the Democrats' chances of electing a president in 1956. Republicans have privately admitted that without Mr. Eisenhower the going would be rough.

A Democratic president could mean a reversal in some trends instituted by the present administration. There could be—in case of a change in the party in power—a return to more overall spending, greater expenditures for defense and a sharp burst of inflation. That—if it were a likely prospect—would at least temporarily shake the confidence of many businessmen.

However, it is unlikely that businessmen will let their politics or their emotion keep them long from conducting their business for a profit. For a long term view neither Mr. Eisenhower's illness nor the possible chance that the Democrats will return to power will seriously dampen the business outlook.

There is also the chance that Republicans are much stronger with the people than their leaders think they are. In that case the present state of affairs in Washington may turn out to be less serious than was supposed early this week. That will be something the party in power now will have to worry about —with the help of businessmen. If ever business help was needed by the present administration it is needed from here on out.

The net result of recent events in Denver places a sobering and great responsibility upon American business and upon the President's official family of advisers. What has happened may produce a political setback but not a business setback.

It is up to businessmen to forestall any feeling of despondency or defeat.

Tom Campbell

EDITOR-IN-CHIEF

GOVERNMENT

TAX-AM: Closed To Steel, Aluminum

But Government decision is not likely to affect major expansion programs . . . Outlook gloomy for revival for either industry . . . Heavy plate program kept open . . . New approach seen—By *N. R. Regeimbal.*

◆ GOVERNMENT decision to keep the lid on fast tax writeoffs for expansion in steel and aluminum caused some grumbling in both industries. But it's doubtful that the decision will mean a hold-up in any major expansion programs.

IRON AGE editors found industry leaders reluctant to put themselves on record officially. But with few exceptions indications were that expansion already blueprinted will go ahead on schedule.

Some steel expansion plans were announced the day following ODM's pronouncement. Pittsburgh Steel Co.'s $15 million program to boost ingot capacity by 180,000 tons, to build a battery of coke ovens and to make other improvements, is an example. The program will proceed as planned.

The outlook is gloomy for revival of tax amortization for either industry. In fact, the end of Tax-am may be in sight.

Steel Programs Worth $1.1 Billion

Dr. Arthur S. Flemming, director of the Office of Defense Mobilization, is going to look over the entire theory of fast tax writeoffs. And Washington sources say chances are he will come up with a new program of inducements to get the industrial expansion he wants for mobilization.

The new policy Dr. Flemming hopes to come up with will probably offer even more inducements to some industries, but will not tend to do much for defense-supporting industries. Likely to be left out in the cold in the new policy, too, are industries where a few large firms dominate the market, such as in aluminum and iron and steel.

ODM's decision came at a time when it had on file 66 applications for fast tax certificates covering steel expansion costing approximately $1.1 billion. In aluminum, applications from five companies covering expansion costing over $423 million were denied.

Goals for electrolytic tin plate, iron ore, gray iron castings, and by-products of coke and metallurgical coal are, or soon will be closed, despite a recommendation by Business and Defense Services Administration that more capacity is needed. The Tax-am program for heavy plate is being kept open because of a large projected deficit in mobilization supplies, and the steel castings goal is still under study.

Due to pressure from other Administration officials, foremost among whom was Treasury Secretary Humphrey, Dr. Flemming was able to restore only one-third

H. H. Tullis, administrative vice-president of Armco Steel Corp., says failure to obtain rapid amortization may have a slowing effect on the company's expansion program.

"Capital programs authorized and to be authorized in 1955 will not be affected by our inability to obtain rapid amortization of their cost. Expansion programs under contemplation for authorization over the next few years, however, will have to be re-examined and it may well be that failure to obtain rapid amortization for tax purposes could slow up these programs," Mr. Tullis said in a statement to THE IRON AGE.

NEW STEELMAKING facilities like these may be slower coming if U.S. sticks to present policy of no more tax aid for expansion in the industry.

of the 38 goals he suspended a little over a month ago for review. Sources close to the situation say he favored reopening several more, but was forced to back down.

Humphrey contends that offering fast tax amortization to defense-supporting industries, such as iron and steel-making facilities, is unwarranted in peacetime. And he also points out that in some really critical areas, Tax-am has not done the job of stimulating more capacity because there is no civilian market for the products.

Dr. Flemming ruled that since the expansion goal for steel ingot of 124.3 million tons is exceeded now by 1.5 million tons of capacity, and the goals for pig iron and wide flange structural shapes also have been filled, the goals will not be reopened.

BDSA had urged that fast tax writeoffs be used to add 15 million tons additional capacity for pig iron and 24 tons of additional steel ingot capacity by 1960. (THE IRON AGE, Sept. 15, 1955, P. 94). But ODM says that Commerce Department finally concurred in leaving the goals, closed in 1953, on the dead list.

Aluminum Program

Dr. Flemming is asking for another new study of the pig iron and taconite goals and the need for facilities to store iron ore to see if they will be adequate when further iron and steel capacity is voluntarily added.

In closing the aluminum expansion goal, Dr. Flemming rules that annual capacity of present facilities, and of new facilities under construction or planned, would reach 1.778 million tons and exceed the goal by 32,000 tons.

Under anticipated capacity, Dr. Flemming lists a 65,000-ton expansion by Aluminum Co. of America without Government assistance, a further planned expansion of 66,000 tons by Alcoa; planned construction of 60,000 tons by Olin-Mathieson Chemical Corp., and 54,000 tons by Harvey Machine Co., Inc., the latter two with tax certificates.

Closing the aluminum goal leaves pending applications for fast tax write-offs for over 300,000 tons added capacity.

INTERNATIONAL

TARIFF: Watch Proposed Cuts

State Dept. has duty cutting authority . . . Will swap with other nations to promote world trade . . . Business can tell viewpoint to committees—*By N. R. Regelmbal.*

◆ STATE DEPT. tariff negotiators, armed with spanking new duty-cutting authority, will sit down with horse traders from 25 foreign countries at Geneva beginning Jan. 18 to swap concessions in an effort to expand world trade. It will be the biggest tariff-cutting session under the general agreement on tariffs and trade (GATT) since 1947. About 1000 products and commodities are involved.

Businessmen who have a special interest in the items on which the U. S. proposes to cut tariffs, or who want the negotiators to seek lower foreign duties on American-produced goods, can tell their story at two sets of hearings beginning October 31 before the U. S. Tariff Commission and the Committee for Reciprocity Information. The latter group is composed of representatives of interested government agencies. Requests to testify should be in by Oct. 17.

List Products

Included in the list of foreign-made items on which the Government proposes to cut tariffs are several hundred metal and manufactured goods categories. Among them: copper, nickel, manganese, tungsten, aluminum, foreign automobiles, magnesite, magnesium, zinc compounds, fire brick, mica, chemicals, iron and steel ingots, bars, sheets, beams, tube, bands and strips, wire rods, wire rope and cloth.

Also, iron and steel forgings, electric equipment, motors, machine tools of some types, guns, tools, scientific and laboratory instruments and equipment, and airplanes.

Some goods were specifically kicked off the list, including items on which the duties are already being attacked as too low. The tariff commission hearings on the proposed duty cuts will consider "peril points" below which duties can't go without hurting domestic. The hearings will consider possible effect of the cuts on defense production, and international relations.

Imports of goods on the proposed list totaled $1.7 billion last year and represent about 17 pct of total U. S. imports and 31 pct on dutiable imports for the year.

Negotiators will also work on removing barriers to trade, including various penalty taxes, restrictive bidding procedures and customs laws. Negotiations will take about three months.

Under the new reciprocal trade agreements law passed by Congress this year, the President is permitted to cut tariffs by as much as 5 pct a year for three years.

The cuts negotiated this year must go into effect by June 30, 1956, or one-third of that tariff cutting power is lost.

One favorable result of the whole business—a special category calls for lowered tariffs on Scotch whisky without compensatory concessions from England, which should reduce prices.

Raise Mineral Charge

Service charges for the handling of mineral leases by the U. S. Interior Dept. have been increased in an action designed to raise Treasury receipts by approximately $219,000 a year.

New fee schedule effective Sept. 28 applies to the processing of leases, public land transactions, and permits. Fees ranging from $5 to $15 cover 59 categories of operations formerly handled free and six other types of services for which nominal charges were made.

MANAGEMENT

SITES: Look Before You Locate

Selecting location for new plant calls for thorough study . . . Big factors are market location, labor supply, taxes, utilities . . . Important to look well ahead in estimating area change—*By G. J. McManus.*

◆ CHEAP LABOR and low taxes led one machine tool company to move from New England to the South. The new area was a little short of skilled workers but the war proved you could train men for any job in practically no time.

Or did it? This company found it just couldn't train or recruit enough skilled labor. The new plant had to be abandoned. The operation was moved back to New England.

Consequences of this move were extreme. The thinking behind it is not. At Ebasco Services, Inc., New York, a favorite story is about a steel company that had bought land for a new plant, then came for advice.

After talking with experts and seeing what other concerns had done, the steel men gave up the expensive tract. What appeared to be a desirable site was shown to have important disadvantages.

From all the talk on plant site selection, three points emerge:

(1) Plant location is vitally important costwise.

(2) The process of site selection is complicated.

(3) There are many misconceptions.

Fantus Factory Locating Service, specialist in the field, stresses the need for systematic advance planning. A Fantus executive tells how companies start out with some notion of locating in Tennessee, Kentucky or maybe Arkansas. Basis for these choices will be that somebody took a car ride and his wife thought the country looked nice.

Know Thyself

Before thinking about real estate, examine existing operations: What raw materials are used and where do they come from? What are the company's products and where do they go?

Labor, power, fuel and water needs should be known. Tax, freight, overhead and other costs should be identified and totaled. Special manufacturing characteristics should be considered.

When the company has taken a long look at itself, the hunt can begin. First, markets should be pin-pointed. Market areas should be broken down by volume and competitive position. Weighted geographical centers should be plotted.

Saw Market Need

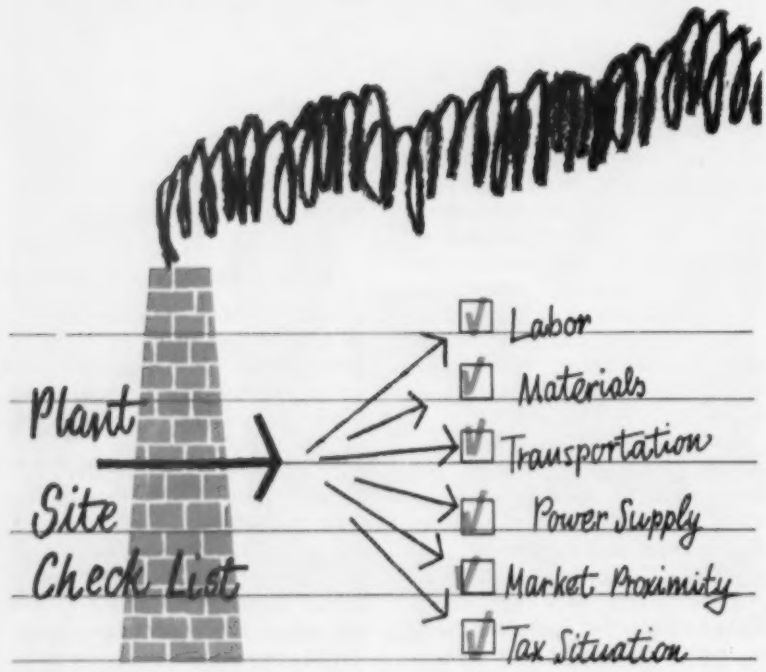
Sometime back a group considered New London, Conn., as site for a fully integrated steel works. A study of the region indicated such an operation would have tough sledding marketwise and the idea was shelved.

Northeastern Steel Corp. took this into consideration in planning its Bridgeport, Conn., facilities. Blast furnace production would be risky but the area did offer a market for carbon and alloy bars.

It was decided that a semi-integrated mill in Bridgeport would have a favorable market position. And being in a scrap surplus area, the mill was assured a good supply of raw materials. The company went ahead with its acquisition and expansion.

With markets spotted, hauling

Site Selection Involves:



distances and freight rates can be considered. The ideal spot is the one that gives the lowest total freight bill: raw material hauling plus finished product hauling.

A location nearer the material source tends to be more economical when processing involves considerable loss of weight. On the other hand, freight rates tend to increase as value is added in material processing.

In practice today, plants gravitate towards markets rather than material sources. But freight rates and routes are too complicated for broad generalizations.

A shift of a few miles in sites may place a company in a different freight bracket with relation to a market and give an important edge over a competitor. The subject calls for individual study and this should be done by experts.

There are other important questions to be answered before any decision is made. Will a town provide the kind and amount of labor needed for a plant? In evaluating the labor potential of an area, unemployment registrations are helpful but must be carefully screened.

Workers Leave

Remember that bricklayers and other construction workers may be available only for off-season work. In a vacation area, there will be a move to high-paying resort jobs when the tourists arrive.

In rural areas, county rather than town borders can be considered in checking available workers. But when you go beyond 20 miles for a man, you're asking for trouble. He will take work closer to home if it comes up.

Diversification between industry and commerce is desirable in a new site. A town with more than half its workers in manufacturing does not make the best home for a plant.

Information Sources

If you are thinking of bringing workers in on a large scale, make sure the new environment doesn't clash with the old.

Best source of information on local labor conditions is among other manufacturers in the area. Merchants, real estate agents and Chamber of Commerce people just have to be a little prejudiced. Ask the men who have the problems you're going to have.

Few Labor Bargains

Regarding regional differences in labor costs, the Southeast still offers bargain rates, particularly in unskilled jobs. But some economists warn against using this condition as a basis for long range planning. They point to union programs calling for nationwide wage standardization, say the Southern plant will wind up with a long haul to markets and no wage advantage in the long run.

Right now, however, most products can be made for less money in the South.

Power Problems

Utilities for your new plant are a big subject all in themselves. Make sure a locality has adequate electric power for your operation and that the lines come somewhere near your front door.

If you're planning to move equipment, make sure the local electric supply jibes with the wiring of your machines. This is becoming less of a problem but there are still localities where operation of old equipment will require expensive conversions or mean a transformer power loss.

If you are to rely on hydroelectric power, make sure the system is backed up by adequate steam generators. In dry seasons, water wheels slow down.

Water supply and water quality will be of vital importance to most plants. Points to consider here include hardness, temperature, source, variations, cost and other demands on the supply. This again is a big field and one to be studied by experts.

Check Tax Bills

Taxes are probably one of the first things companies think about when they get the moving bug. Taxes should not be allowed to obscure other considerations but they are undoubtedly a big item.

One point to remember here is that the future as well as the present tax position of a community must be analysed. A depressed area may offer attractive rates at the moment but have long overdue expenditures coming up.

The Southwest now is a low tax area. Moreover most Southern states are pushing industrial development. Tax concessions have taken some plants south and brought real savings.

But again, equalization is due to set in. The time will undoubtedly come when regional tax differences are negligible.

The Fine Points in Site Selection

Is area compatible for workers who must move to site?

Will cheap labor remain inexpensive?

Is present tax picture stable or subject to change?

Is power available and not vulnerable to drought or extreme cold?

Are distances from markets and materials in balance?

Does site fit into defense picture?

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Here is a typical assembly-line scene . . . a Tinnerman "J" type SPEED NUT being applied to a panel where a weld-type fastener was formerly used. That's the way to cut assembly costs—by saving precious man-hours and eliminating the need for special skills, tooling and equipment!

This one-piece, self-locking, spring steel SPEED NUT brand fastener not only makes welding unnecessary, but it also eliminates clinching, staking, tapping, and costly threaded inserts. It snaps in place by hand quickly, easily, and provides a heavy-duty vibration-proof attachment. Self-retained in screw-receiving position, it is ideal for blind-location assembly.

"J" type SPEED NUTS are available for a full range of screw sizes and panel thicknesses. In all, there are more than 8000 variations of SPEED NUT brand fasteners to help you reduce assembly costs. See your Tinnerman representative soon . . . and write for your copy of SPEED NUT "Savings Stories."

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AIRCRAFT: What Can It Do For You?

Small and medium size businesses are making good use of aircraft in saving time, overcoming distances . . . Company owned and operated airplanes outfly scheduled lines . . . Decentralization factor—By *F. J. Starin.*

◆ USE OF company aircraft is not limited to so-called "Big Business." Small and medium size outfits are finding that it pays to invest in their own planes, particularly where the time factor may mean the difference between getting or losing a sale.

As a result, airplanes owned and operated by private business organizations are logging more mile and flight hours than ever before.

In 1946 there were about 2500 business aircraft in operation. Today there are close to 20,000 planes, and reliable industry sources expect this figure to double in a year or two. All domestic scheduled airlines currently operating own a total of only 1500 ships, a good indication of the extent to which industry has adopted personal air travel.

In 1954 these privately operated business craft logged a total of 3.9 million air hours, the equivalent of about 400 years of continuous flight. They flew 546 million route miles, enough to go around the world 21,840 times.

Industry's Bill

These figures overshadow the scheduled airlines' 3.1 million air hours and 518 million route miles.

Surveys revealed that American businesses value their air fleet at an expenditure upwards of $420 million. The consensus among business aircraft manufacturers is that within a decade that figure will reach $1 billion.

Decentralization has been the deciding factor in prompting the smaller manufacturer to look to personal air transportation. All business, but particularly the smaller outfits working in an increasingly competitive market, have long been aware that time saved is as good as money saved.

Lately most of the new sources of raw materials and power supply that are being discovered are a considerable distance from markets and sales management offices.

Case Histories

Thus in order to take advantage of the economy offered by abundant and cheap raw materials and power, business had to devise some rapid and flexible means of connecting the producing facilities with sales organizations. The company owned airplane provided the answer and in addition offered an excellent means of building prestige, made a good business promotion piece and was available to fill in on emergency delivery of critical material and parts.

An excellent example of the essential part average business has assigned to company owned aircraft is the Gaylord Container Corp. The main company office is in St. Louis, but the corporation maintains mills in the forests of Bogalusa, La., a small community more than 70 miles from the nearest airline stop.

Gaylord company first became interested in owning their own aircraft in 1945. They now own five planes which in addition to making hundreds of executive trips per year between St. Louis and Bogalusa explore and patrol the mill area and supply fast short-haul transportation.

Manufacturers Ready

The aircraft manufacturers are taking note of what has been called "the coming golden age of business flying" and are building more planes with interiors specifically designed for small and medium business flying.

THE MALLARD G-73, an eight to ten place plane at home on either land or water, a Grumman product aimed specifically at small business flying.

(Advertisement)

FALLACIES AND FACTS FOR CARBIDE BUYERS

"Equivalent Grade" charts can mislead carbide users

Another blunt — but necessary — clarification by the manufacturer of Carboloy cemented carbides shows how these charts fail to disclose important facts.

Charts purporting to be "Equivalent Grade" or "Industry Standard" carbide comparison tables are now being liberally distributed in the metalworking industry. *Both titles are misnomers.*

Those who advocate their use claim or imply that:

1. These charts prove that a purchaser can safely interchange grades made by a number of manufacturers and get equal results on a given job.
2. These charts were compiled as a joint effort by all carbide manufacturers.

Neither statement is entirely factual.

THE FACTS ABOUT CLAIM NO. 1

The so-called "Equivalent Grade" charts are an attempt to convince carbide purchasers that any of the grades listed for a particular job will perform equally well. *This is not in accord with the facts.*

No two carbides are exactly alike in over all performance. Their production abilities vary tremendously because of differences in composition, metallurgical structure, manufacturing techniques, and quality control. For example, Carboloy Grades 883 and 44A have identical chemical composition. Yet because they are completely different structurally, they cannot be used as "equivalents."

Because no two carbides are exactly alike in performance, attempts to force them into arbitrary cubbyholes on the charts lead, inevitably, to poor machining results. The weakness of using the charts to select "equivalent" grades is easily demonstrated by two examples:

1. Carboloy manufactures four different cast-iron cutting grades to handle various conditions. Several other manufacturers have one or two grades to cover the same range. Now it is quite possible that competitive grades might work out in general, but in the specific areas covered by our four grades, *they would not provide optimum performance.* Yet all the grades are in the same classification on the charts . . . with no attempt made to distinguish their particular advantages.

2. Carboloy's new steelcutting Grades 350 and 370 do not fall under *any* of the general chart classifications. If included at all, Grade 370, for example, is usually placed under the designations "C-5" and "C-6." Yet we know from experience that Grade 370 will give far longer tool life than our Grade 78B, *which has the same classification numbers.* Obviously, the two grades are not in the same category in terms of production ability. Yet the charts would lead purchasers to believe that they are "equivalent."

THE FACTS ABOUT CLAIM NO. 2

Despite anything to the contrary, these charts were not compiled as a joint effort by all carbide manufacturers.

Obviously, every carbide manufacturer should recommend the types of cutting applications each of his grades is designed to handle. This is part of his responsibility to the customer.

However, as far as the Carboloy organization is concerned, our recommendations stop with giving data about our own grades. We have compiled test and case-history information on them. We know exactly how they will perform. But we are not in the position to give similar data on other manufacturers' grades — nor is anyone else better qualified than ourselves to give data on our grades.

But several other carbide manufacturers have decided, apparently, to assume this responsibility. Their compilations — under the title of "Equivalent Grade" or "Industry Standard" charts — are now being widely circulated in the trade. The use of these titles may lead the carbide buyer to believe that the chart has been agreed to by all manufacturers. This emphatically is not the case.

AND, THE GREATEST FALLACY

Unlike steel, which can be changed somewhat by heat-treating or other operations after it is delivered, the properties of carbides cannot be altered.

This means the purchaser should know exactly what he is buying . . . and that he should insist on a carbide with consistent production ability.

The important factor of consistent operation is not covered in *any way* by the so-called "equivalent charts." And this, we feel, is perhaps the most important fact not brought to the attention of the carbide user who relies on the charts when specifying grades for his job.

"Carboloy" is the trademark for products of the Carboloy Department of General Electric Company

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DEPARTMENT OF GENERAL ELECTRIC COMPANY

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Carboloy Created-Metals for Industrial Progress

Security:

Defense Dept pushes firms on voluntary gag.

Under the new industrial information rule, Defense Dept. procurement officers are required to "encourage" management to "exercise considerable caution prior to any release of (unclassified) economic or technical information in press releases, advertisements, notices to stockholders, annual or quarterly reports, or brochures."

The order applies not only to firms holding government contracts, and their subcontractors, but also to any firm on the so-called "key facilities" list.

Urge Care

The list is made up of thousands of firms not now holding government contracts, but which are rated as of prime importance in a future national emergency.

Regulation insists that industry "exercise caution" in making information public on contract awards; vulnerable points within a plant; plans and details of expansion of equipment and facilities; production methods, techniques and equipment; production and production capacities; sources of semifinished products, components and supplies; sources of power, other utilities, and critical transportation; and information about plant industrial defense planning.

Pentagon chiefs stress that the new industrial information security program is strictly voluntary, and is designed to prevent potential enemies from gathering unclassified information so as to make accurate appraisal of this country's strength, weaknesses, and its "strategic intentions" difficult.

There is no penalty for releasing unclassified information, either accidentally or intentionally.

At the same time, a special House subcommittee on government information policies is getting ready to open hearings early in November into more than 100 complaints of government suppression of news.

Preliminary investigations by subcommittee indicate, according to Chairman John E. Moss, D., Calif., that most of the charges of government suppression of news are valid. Most complaints come from newsmen, although members of Congress, their staffs, and business are also complaining.

Takes Defense Post

Floyd S. Bryant, of San Francisco, newly named as special assistant to Defense Secretary Wilson, will help decide how the Hoover Commission recommendations on military matters can be applied to Defense Dept. policies.

Employed by the Standard Oil Co. of California in 1922, Mr. Bryant became a director of the firm in 1940 and a vice president in 1942. He served with the company until he accepted the Pentagon post.

Targets:

Sixteen cities start work on atomic survival plans.

Sixteen industrial and shipping centers have been named by the Federal Civil Defense Administration as the first areas asked to establish new atomic-attack survival plans.

Cities selected are New York, Chicago, Philadelphia, Washington, New Orleans, Boston, Baltimore, Cleveland, Detroit, Milwaukee, St. Louis, Houston, Atlanta, Los Angeles, Denver, and San Francisco, including Oakland. Other target areas will be invited to take part in the program.

Civil defense teams are to cooperate with city officials in drawing up workable plans for evacuating residents from threatened points (THE IRON AGE, Sept. 22, P. 65). Funds to permit planning are to come from a $10-million congressional appropriation.

An adequate plan will have to be brief and simple, and it must begin functioning almost automatically as soon as a community is warned of an imminent attack.

When the drafting is completed, each plan is to be tested for flaws in the evacuation and shelter schemes. Planners are to be prepared to change the plans if inadequacies are found.

Jets Get Fueling Rig

All new Navy fighters are now being equipped with in-flight refueling gear to add combat range.

Jet aircraft on which this equipment is installed are the Grumman F9F Cougar and F11F Tiger, Change Vought F7U Cutlass, McDonnell F2H Banshee, and North American FJ Fury.

This fully-automatic gear gives greater striking range to carrier-based planes, permitting them to carry a heavier armament load a long distance.

NAVY MIGHT. XF4D Skyray comes in for a landing aboard the U. S. S. Coral Sea in maneuvers testing jet carrier approach techniques.

EXPANSION IN INDUSTRY

Capacity:

Youngstown will spend $70 million next year.

Youngstown Sheet & Tube will spend about $70 million on capital expenditures next year and this year will break all production records with almost 4 million tons of finished steel shipped.

J. L. Mauthe, president of the company, says most of the expenditure will go into the company's Indiana Harbor, Ind. mill for the electrolytic tinplate and seamless tube mills there.

The Indiana Harbor operation "has performed well under forced draft conditions" in the current market, Mr. Mauthe says, but the new increases in finishing capacity in relation to basic steelmaking facilities will give it greater diversification.

Merger Open

Youngstown and Bethlehem Steel Co. are still anxious to merge despite Justice Dept. rulings against the proposed merger. The two companies are still working on the project, hope to obtain "some means of getting an expeditious judicial determination of the legal issues involved, based on the facts of the case."

Mr. Mauthe estimates that this year's production at Youngstown will be 31 pct higher than the company's average annual shipments for the previous five years.

The company's Youngstown, Ohio operations have been assisted by a rapid growth of steel consumption in the Ohio-Western Pennsylvania area. The Indiana Harbor plant in the hot Chicago market area was laid out with further expansion in mind.

During the past five years Youngstown has spent $234 million for capital equipment and improvements.

Generator rotor descends into one of three new heat treating furnaces at U. S. Steel's Homestead Works.

Southern Warehouse

Republic Steel Corp. will build a 75,000-sq ft warehouse in Charlotte, N. C., to serve North and South Carolina and part of Georgia. It is the third important expansion in the South announced this year by Republic.

Others include the $130 million expansion of the Gadsden, Ala., plant's steelmaking facilities as well as expansion of the plant's production of hot and cold-rolled sheet and continuous hot dip galvanized sheets.

Rectifiers:

General Electric to spend $5 million for New Plant.

The General Electric Co. has announced plans to spend in excess of $5 million to construct a new home for their Rectifier Dept. at Lynchburg, Va.

Initial grading of the ground for the new plant site will begin in November, with actual construction set to start in March 1956. GE expects to begin production in their new unit January 1957.

The new plant will permit consolidation of the manufacturing facilities now located at Lynn, Mass., and Limerick, Me., thus providing more economic operation.

The 100 acre site, big enough to allow for expected expansion according to the company, will consist of a modern research laboratory and two-story office building in addition to manufacturing facilities.

Selection of the Lynchburg location was predicated among other things on good labor supply, transportation, and favorable local laws.

Three New Warehouses

In a major expansion move made necessary because of a 400 pct increase in business over the last 10 years, Metal Goods Corp., St. Louis, Mo. is opening new warehouse facilities in Wichita, Memphis and the home city of St. Louis.

The Wichita plant contains 20,000 sq ft and the Memphis plant 16,000 sq ft. The new St. Louis unit is 212 x 500 ft with double the capacity of the building it replaces.

Multi-million Research

Borg-Warner Corp. has announced plans for a new multi-million dollar research center to be constructed in Des Moines to replace the smaller laboratory in Bellwood, Ill. Building on the 36½ acre site has already commenced with completion expected in the spring.

The new facilities will contain equipment for metallurgical, electronic, electrical, chemical, acoustical, hydraulic, applied mechanical physics and nuclear research. It will house a complete machine shop, computation center and a large technical library. About 100 engineers and scientists will be engaged in research at the start of the new operation.

TAYLOR & CO., INC., REPORTS

"90% less machining

through shell molding

with G-E SHELL RESINS"

"Now we can offer customers precision-cast parts which often eliminate machining up to 90%," reports James J. Silk, Shell-mold Superintendent, Taylor & Co., Inc., Brooklyn 22, N. Y.

"Shell molding with General Electric resins enables us to turn out intricate castings with a smoothness of finish and sharpness of contour difficult to achieve by conventional sand molding—parts that may often be used 'as-cast.' G-E resins are used exclusively in our shell-molding foundry because their consistently uniform properties help us realize the many advantages of this new casting process."

Taylor uses three General Electric shell-molding products to turn out such cost-cutting parts as shown here: *G-E 12374 phenolic shell-molding resin* to form strong, dimensionally accurate molds, *G-E SM-55 silicone parting agent* to secure quick, easy release of molds from patterns, and *G-E 12316 bonding resin* to cement shell halves together.

Progress Is Our Most Important Product

GENERAL ELECTRIC

ASK G. E. ABOUT SHELL MOLDING

How can shell molding help YOU? General Electric maintains a shell-molding laboratory in Pittsfield, Mass., to help foundrymen and casting buyers solve problems and evaluate the process. G.E. also offers an informative 28-page manual describing the techniques and benefits of this new foundry method. *Send for it today!*

FREE BOOKLET AVAILABLE!

General Electric Company
Section 572-6C, Chemical & Metallurgical Div.
Pittsfield, Massachusetts

Please send me a free copy of *G-E Shell Molding Manual.*

☐ We are presently using the shell-molding process.
☐ We are interested in the shell-molding process.

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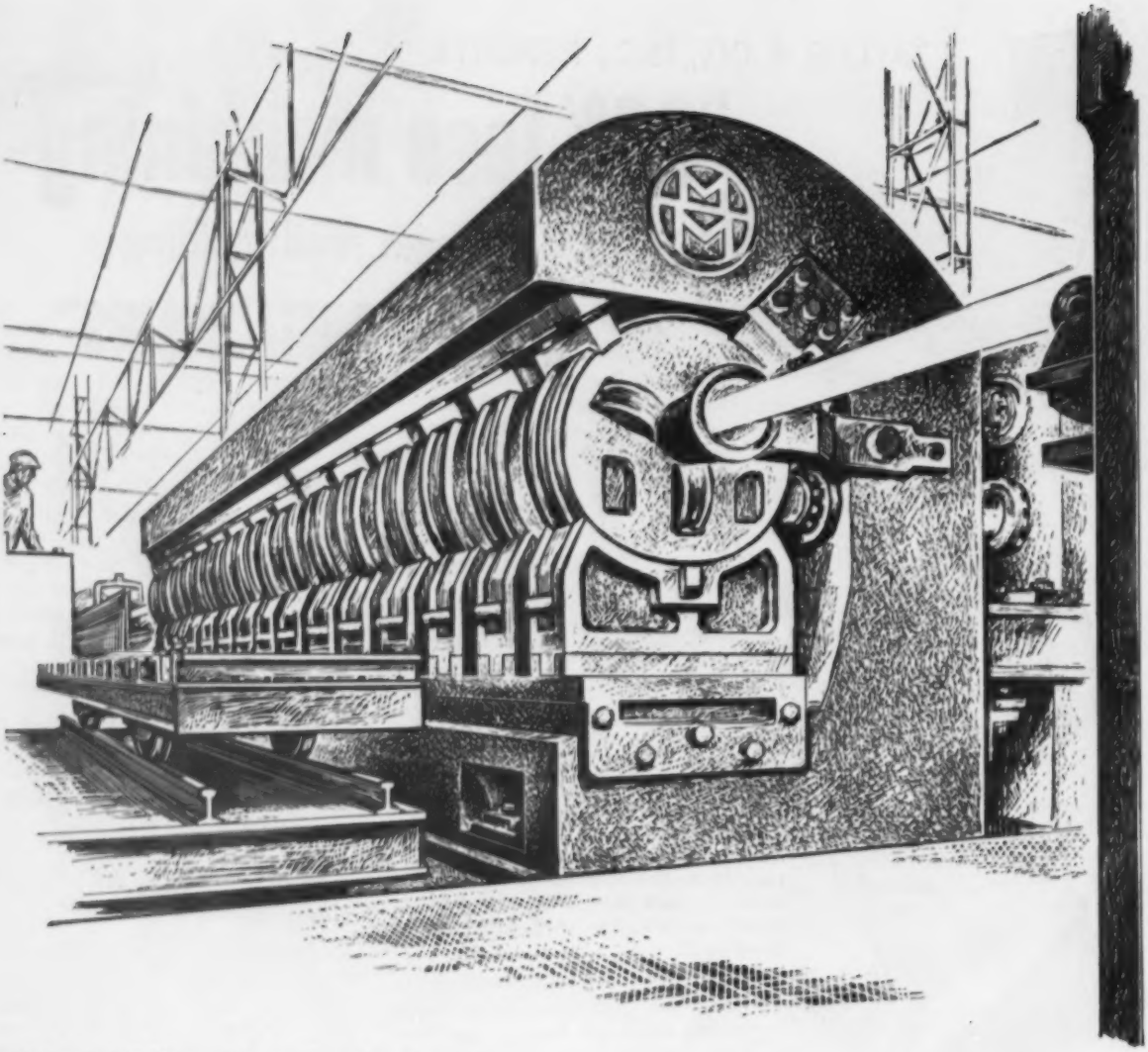


Want Higher Pipe Production?

Stretch reducing to increase tonnage rating of existing pipe welding mills or to increase the potential output of new mills is one of the recent production improvements at Mannesmann-Meer. Welding or rolling large diameter standard sizes boosts tonnage of the original mill and puts the stretch mill to work to produce the smaller sizes.

But that's only half of the story. By applying the 3-roll arrangement to the stretch reducing mill, greater diameter and outstandingly high wall reductions together with an improved mill finished product have been made possible. Moreover, basic changes in overall mill design include a revolutionary new mill drive and an ingenious roll stand arrangement to suit today's need for extremely fast schedule changeover.

Plan ahead and develop today what you will ask for tomorrow is Mannesmann-Meer's approach to the problems of the pipe and tube industry. This leads to the design of equipment incorporating a combination of

- CREATIVE ENGINEERING
- DESIGN EXPERIENCE
- OPERATING BACKGROUND
- AMERICAN MANUFACTURING SKILL

which is nowhere else available and ready to answer your questions.

MANNESMANN-MEER

ENGINEERING AND CONSTRUCTION COMPANY, 900 LINE STREET, EASTON, PENNA

WORLD SPECIALISTS IN HIGH-SPEED TUBE MILL MACHINERY

THERE'S A
COMPLETE LINE OF ROEBLING

Galvanized

ROEBLING is a specialist in galvanizing with practically unmatched facilities for producing galvanized wire in enormous quantities and in complete size ranges. Hot galvanized is available in sizes from .283" to .035"... Roegal (drawn galvanized) from .187" to .005".

And Roebling galvanized wire can be packaged in the way most convenient and economical for you... in coil diameters of 60", 30", 22", 16" and 8"...on reels, spools or handy spoolless cores.

You *pay* for the best when you buy galvanized wire. Make sure you *get* it—specify Roebling! John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING CF

Subsidiary of The Colorado Fuel and Iron Corporation

ATLANTA, 934 AVON AVE. • BOSTON, 81 SLEEPER ST. & 5 PITTSBURGH ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13235 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • ROCHESTER, 1 FLINT ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • ST. LOUIS, 3001 DELMAR BLVD. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK

Here's where you get the answers to steel problems

● Look under "The Youngstown Sheet and Tube Company" in one of these alphabetical or classified phone books.

They represent the 28 conveniently located district sales offices Youngstown maintains across the country. Offices staffed by men who know the steel business. Men who know and understand **your** steel problems. Men who are qualified to help you get the specific steel you need.

When you want answers to steel problems in a hurry, just call the Youngstown office nearest to you.

QUALITY YOUNGSTOWN SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS

Report to Management

A Full Pork-Barrel

You will get a dubious assist from Congress in keeping business going at top speed through 1956. Your congressman, and there are few exceptions, is helping promote the biggest surge of public works in the postwar period.

Whether you approve or not, there is no point in ignoring the fact that Congress put through a mammoth program that may set records. It includes projects of irrigation, flood control, harbor improvement, power development and other construction programs.

Election year politics can be blamed for a lot of it. Each congressman must go to bat for re-election next fall and there is no better campaign material than a few fat projects for his district.

In the Wake of the Flood

Another factor in packing the public works bill is the result of devastating floods in the Northeast and other hurricane and flood damage elsewhere.

Not all will be concentrated in damaged areas. You can expect other districts to push their hardest for flood prevention measures which may be sound in principle but expensive to you as a taxpayer.

How It Affects You

These projects mean more big jobs for contractors, suppliers of construction materials, pipe manufacturers, and makers of electrical production and transmitting equipment. Most of these industries are already overloaded.

Spending won't start until spring of 1956, however. If you are in these businesses or related industries, you will feel the spending later in the year. If there should be a tendency for an economic letdown, these projects will provide the means of keeping up the pace through the entire year.

Public works projects of $500 million a year should be the rule for at least the next several years. Most of the projects authorized in the 1956 bill will take several years to complete.

Don't Put On Blinders

You will hear a continual flow of tips from now on that business will fall off after the end of the year. Before you start thinking of retrenching, take a good look at your own business situation.

Evaluate your own plans and projections. Do you intend to spend substantially on capital improvements? Do you think you will have to take on more workers, expand your sales force or modernize your operations?

Remember that others are in the same situation. If you are optimistic yourself, and need men, equipment and materials that will keep up the pace, you can be sure that others are in the same healthy situation.

Warning signals are prompted by past statistics that may not mean the same thing today. You are in an expanding economy and even future "recessions" are apt to be at the level of previous years' high points.

Is Credit Unhealthy?

Credit continues to be the scarecrow in the picture. But increased credit is not necessarily dangerous. It reflects increases in population, new and better products, and increasing confidence.

Where would a letdown originate?

Certainly not in steel, striving to cut its carryovers and get current with a hungry market. Not in aluminum, working hard at increasing its capacity. Not in automobiles, just out with new models. You will have to look hard to find a weak point to justify pessimism.

INDUSTRIAL BRIEFS

Industrial Heating . . . Orders for industrial heating furnaces are running far ahead of 1954, according to the Industrial Heating Assn. Orders during August totaled $6,273,053, compared to $2,570,761 for the same month of 1954. For 1955 to date, net order figures for furnaces and control equipment total $53,004,758 compared with $30,050,173 for 1954.

Completes Plant . . . Ashworth Brothers, Inc., Winchester, Va., has completed a new $500,000 conveyor belt plant for continuous flow production of woven and flat wire belts ranging from one in. in width to 18 ft.

Buying Proposal . . . Blaw-Knox Co. has offered to purchase the assets and business of Continental Foundry & Machine Co. on a basis that would provide about $51 per share for Continental stock in liquidation. Continental operates plants at Wheeling, W. Va., East Chicago, Ind., and Coraopolis, Pa.

New Division . . . Pheoll Manufacturing Co., Chicago, has established a new Standard Div. to have complete responsibility for the company's line of standard stock products marketed in the commercial fastening field. The move is part of a new organization plan calling for three autonomous divisions.

Companies Merge . . . Merger of the Louthan Mfg. Co., East Liverpool, Ohio, with Ferro Powdered Metals, Inc., Salem, Ohio, was announced by the Ferro Corp., Cleveland, parent company of both wholly-owned subsidiaries.

Distributes Fittings . . . Franchisement of Dudley C. Jackson, Inc., engineering firm at 6752 Stony Island Ave., Chicago, as a distributor of Hoze-lok reusable fittings for hydraulic hose is announced by Parker Appliance Co., Cleveland.

Opens Branch Office . . . Norden-Ketay Corp., manufacturer of precision electro-mechanical and servomechanism components and instruments has opened an office in Washington, D. C., to enable the company to maintain a close contact with the various defense agencies.

Appoints Agent . . . Vanton Pump & Equipment Corp., Hillside, N. J., has appointed H. R. Crittenden, 9 South Clinton St., Chicago, as Northern Illinois agent.

Becomes Representative . . . George M. Wallace & Co. is now representative in the Rocky Mountain district for Cochrane Corp., Philadelphia, line of water conditioning equipment, steam specialties and C-B condensate return systems.

Service Shop . . . The Berks Engineering Co., Reading, has been named a certified service shop for Allis-Chalmers motors and controls in Pennsylvania.

Opens West Coast Plant . . . Klem Chemicals, Inc., Dearborn, Mich., announces the opening of Klem Chemicals, Inc., El Monte, Calif., to handle all West Coast production of both liquid and powder metal cleaning, rust removing, phosphate coatings, paint removing and spray booth compounds.

Channels Now Flow . . . Metal channels, for years successfully used in mass assembly of materials handling lift trucks, are now generally available to industry, according to Youngstown Steel Car Corp., Niles, Ohio. The channels are die-pressed from steel plate and can be used in place of rolled channel sections, a material in tight supply.

New Representative . . . Harrison Engineering Services, Washington, D. C., has been appointed exclusive representative for Wallace Supplies Mfg. Co.'s tube bending machines and abrasive cut-off units.

Receives Contract . . . A contract for more than $250,000 from Aerojet-General Corp. of Azusa for the manufacture of 24 stainless steel pressure vessels was awarded to the Standard Steel Corp. of Los Angeles. Upon completion, the vessels will be put into use at Aerojet's rocket test and manufacturing facility.

Appoints Distributor . . . Brass & Copper Sales, Inc., Philadelphia, has been appointed warehouse distributor for Berylco wrought beryllium copper products manufactured by Beryllium Corp., Reading, Pa.

Acquires Company . . . Acquisition of Western Inspection, Inc., Midland, Texas, by Sperry Products, Inc., Danbury, Conn., has been announced. Western Inspection will become Sperry Western, Inc., with offices remaining in Midland and Odessa, Texas, and Lake Charles, Lafayette and New Orleans, La.

Lighter Girders . . . Smaller, lighter girders that still give maximum supporting strength for the kiln load in ceramic firing have been developed by the Electro Refractories & Abrasive Corp., Buffalo, N. Y. The girders are made of 85 pct silicon carbide and replace those of heavier and bulkier fire clay.

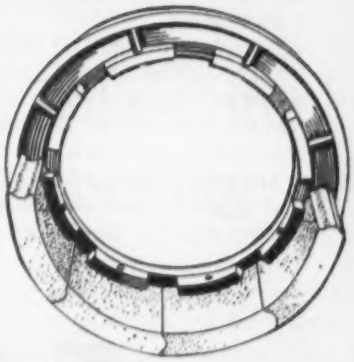
for profit's sake—

Use Sterling's No. 2 Chuck and Segments on every Surfacing Job!

Sterling Chucks are light-weight, not complicated, readily handled, quickly installed. They are easy on bearings. This reduction of weight makes for unusual efficiency—more power is used for grinding rather than operating the chuck. The Sterling No. 2 Chuck is safe—always. Its individual mountings provide a positive segment grip easily regulated by a simple twist of a socket wrench. Adaptable to all surface grinders, Sterling No. 2 Chucks are supplied to take segment rings from 8" to 30" in diameter. There's one for your machine!

Sterling's interlocking segment design means added strength throughout the entire abrasive ring, presents no dangerous projections to catch on materials being ground. The minute air spaces between segments mean cooler grinding, wider spread of coolant, better finish without chatter marks. Identical in design, Sterling Segments always fit your chuck, firmly and rigidly.

A Sterling engineer, skilled in solving hundreds of similar jobs, will gladly work with you and recommend the segments needed to speed up your surface grinding jobs. Write or wire us today.



Here is shown Sterling's famous chuck and segment assembly. Note the eight segment-holding units and the interlocking segment design. Easily removed, readily replaced, these superior segments in Sterling's No. 2 Chuck are a winning combination every time!

STERLING GRINDING WHEEL CO., TIFFIN, OHIO

A SUBSIDIARY OF

ABRASIVE AND METAL PRODUCTS CO.

DISTRIBUTORS IN ALL PRINCIPAL CITIES

AUTOMOTIVE ASSEMBLY LINE

Why Cadillac Leads Luxury Field

Backlog of 1956 orders precedes start of production . . . Costs less to own and operate than many smaller cars . . . Dealers thrive on high ratio of cash deals . . . Price pattern is set—By *T. L. Carry.*

◆ ANY AUTOMAKER in Detroit who tries to take over Cadillac's position in the industry as the number one luxury car, is going to find that he has a tough job on his hands.

Engineers can argue until they are hoarse about the relative merits of Cadillac and other luxury cars, but they cannot dispute the fact that the GM division, as far as the public is concerned, carries the prestige banner for the industry.

Big Backlog . . . There are several reasons why trying to dethrone Cadillac would be a job for a giant killer.

Consider first the fact that even though Cadillac has not yet started its 1956 production, there is already a very comfortable backlog of orders for new cars.

Also, a whopping 82 pct of Cadillac sales are cash deals and the trading ratio for the division is .65 to 1 compared to 1.75 to 1 for the rest of the industry. This is an indication that most used Cadillacs are sold by their owners and new ones are bought without trades, leaving the dealers in a very comfortable position.

All of this reflects an extremely solid position in the luxury field and one that is not going to be usurped over night.

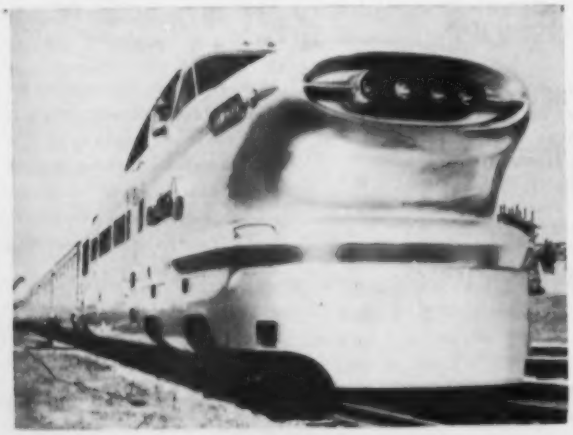
Even Has Economy . . . Good public acceptance of its product is probably the main reason for Cadillac's well-established trade today. Over the years the division has built up its prestige through performance, economy and styling.

Pound for pound a Cadillac costs less to own and operate than any car of comparable size on the market. This is a small point when you consider the type of person who buys a Cadillac, but car owners like to be able to brag about how economical their car is. In addition, the car looks good and it performs well.

Cadillac has no intention of relinquishing its enviable position and has planned an ambitious program for 1956 to make sure of it.

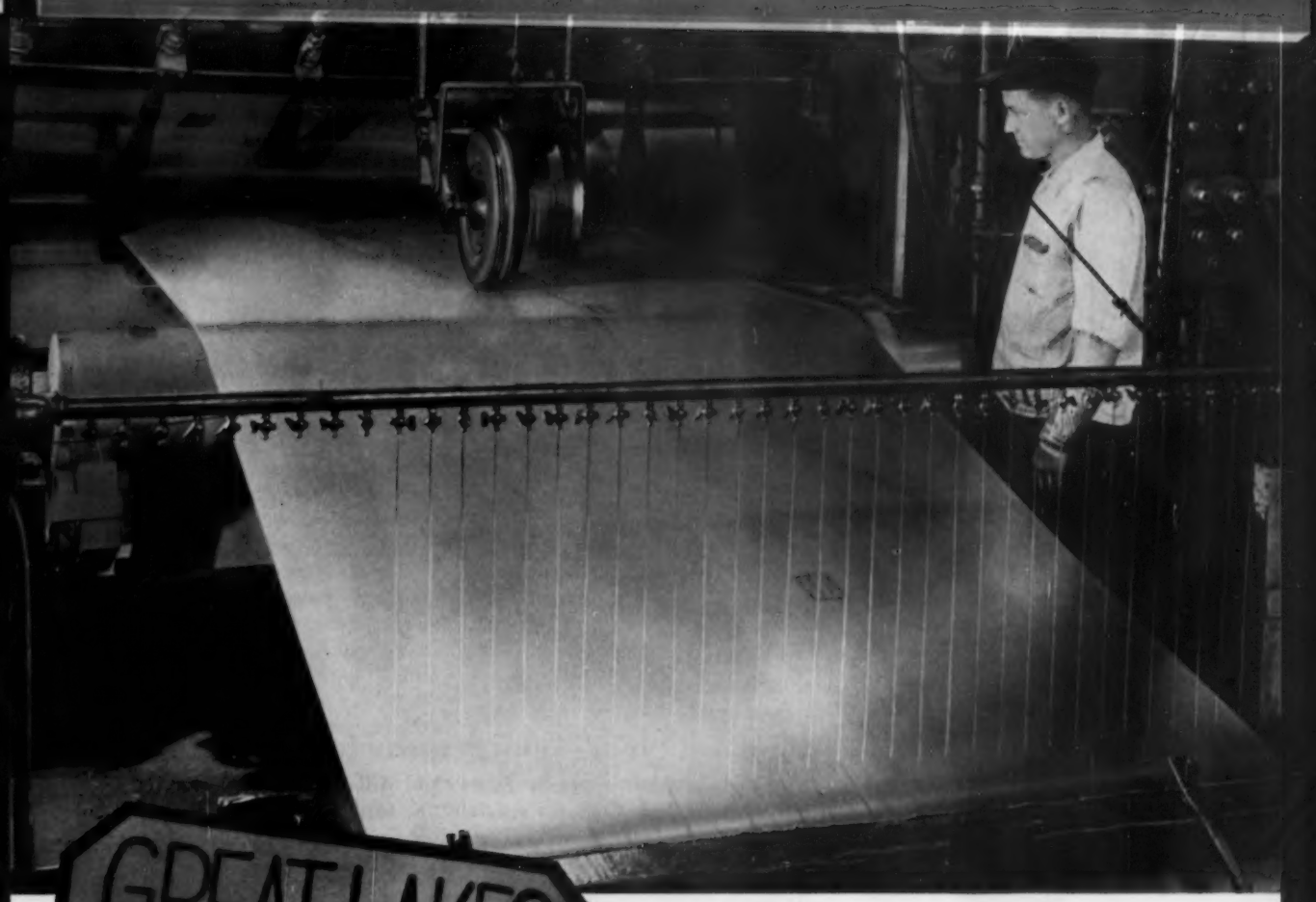
For 1956 . . . The GM division is going to increase its production next year to a record high of 156,000 cars, according to James M. Roche, general sales manager. The figure represents a 15,000 increase over the current model year.

The new car will have a 365 cu in. engine with a 9.75 to 1 compression ratio, the highest in the industry, and it will produce 285 hp. Engineering advancements in the Eldorado engine have increased its hp to 305. Two new body styles are also slated for 1956. They are a 4-door hardtop and a 2-door hardtop which will be a companion to the Eldorado convertible in that field.

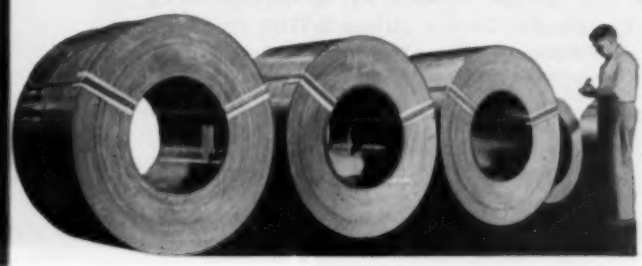


AEROTRAIN, GM's lightweight passenger train, makes wide use of stainless steels. Workman on right adjusts

lock on upper section of stainless baggage compartment. There are many other stainless applications.



Devices such as the one shown in operation above stamp our steel with our name. Each lift and coil Great Lakes Steel produces carries such a stamp or tag bearing an identification number from which the complete history of the material concerned can be obtained.



How Great Lakes Steel *identifies* quality

Because this identification helps us give better service to our customers, it is an important aid toward an all-important goal. The goal can be summed up: *Give each customer the quality of steel to meet his requirements—when and as wanted.*

Men throughout the mill insist on *quality with service* for our customers.

We invite you to talk over your production problems with a Great Lakes representative. His assignment is to bring into your plant the steelmaking knowledge and experience of the Great Lakes organization.

GREAT LAKES STEEL CORPORATION

Ecorse, Detroit 29, Michigan • A Unit of

NATIONAL STEEL CORPORATION

CleCap Top Quality Fasteners

Standard Types—*always ready for you*

Standard Cap Screw types, Set Screws and Milled Studs of highest quality have been CleCap's specialty for forty years. Designers and production men recognize the advantages and economies in using these well-made products for dependable speedy assembly.

Available in ferrous and non-ferrous metals: bright, high carbon and alloy steels—heat treated, brass, silicon bronze, aluminum and stainless steel.

Hex Head Cap Screws: ¼" to 2½" dia.
Socket Head Cap and Set Screws—Plain and Knurled: ¼" to 1½" dia. Also Flat and Button Head Styles.
Flat Head Cap Screws: ¼" to 1" dia.
Fillister Head: ¼" to 1" dia.
Set Screws—Square Head: ¼" to 1½" dia.
Milled Studs: ⅜" to 1¼" dia.
Place Bolts: ⅜" to 1¼" dia.
Structural Bolts to ASTM Specification A325
Tractor Bolts
Facilities to make larger diameters than listed.

Write the factory or ask your jobber for CleCap Fasteners.

Special Types—*to your design and "specs"*

It just might pay you to take a good look at the special parts you're buying that could be made more economically by CleCap's hot heading or cold extrusion processes.

CleCap pre-forms your non-standard parts for further shaping and machining in your plant or manufactures them complete, ready for your assembly line.

You can save yourself tooling and machine time. Take a look at what CleCap offers—engineering skill and experience in applying high production methods and machines to your problems. Write for folder, "Specials by Specialists."

The Cleveland Cap Screw Company

2929 East 79th Street • Cleveland 4, Ohio • VUlcan 3-3700 TWX CV42

Warehouses: Chicago • Philadelphia • New York • Providence • Los Angeles

Sales Representatives in All Principal Cities

Originators of the Kaufman DOUBLE EXTRUSION Process

Automotive Production

(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
Sept. 24, 1955	127,601	25,805
Sept. 17, 1955	124,679	21,805
Sept. 25, 1954	55,818	16,986
Sept. 18, 1954	59,797	14,229

*Estimated Source: *Ward's Reports*

Dream Car . . . Later in 1956, Cadillac will go into limited production of the Eldorado Brougham, the dream car shown at the last Motorama. The 4-passenger coupe will retail in the neighborhood of $8500. It will feature, among other things, pivoting seats, an improved automatic transmission and a design which eliminates the conventional center post of 4-door cars.

Mr. Roche says the division spent $29 million for tooling for the 1956 cars.

Prices:

Ford's $46 to $99 Jump Sets Pattern.

Ford Motor Co. might have gained a competitive advantage on other producers this year by being the first to offer 1956 cars to the public. But the company also fell heir to a pricing problem by doing it.

Just about everyone in Detroit has been expecting a price hike for the 1956 autos ever since the contract settlement with Walter Reuther's UAW and the wage increases won by the United Steel Workers this summer.

Sets Pattern

Guesses as to how big a price increase was coming ranged from $5 to $150. Everyone, however, agreed on one thing: the first company to offer its new cars to the public would probably set the price pattern.

If that's the case, the average price of automobiles in 1956 is going to be about 5 pct higher. Ford, at least, is going up 5 pct. The increases range from $46 to $99 on various body styles.

List prices on 6-cylinder cars range from $1562 for the 2-door business sedan to $2280 for the 8-passenger Country Squire station wagon. All 8-cylinder models remain $93 more than the 6-cylinder model. Prices on some optional equipment has been reduced.

Power Steering Down

Power steering, for example, has been cut from $85 to $49.50. This is a sizable reduction and is another indication that competition in the auto industry is good for the consumer.

When power steering was first introduced, it cost nearly $200 and the price has gone down steadily since. In the meantime, engineers have been constantly improving on the mechanism.

Mobilization Plan

There's a new defense mobilization plan currently being used in the automobile industry, which, if properly carried out, is going to insure a more rapid change to defense production in case of another national emergency.

The plan, presently in effect at GM's Fisher Body Div. and Ford Motor Co., was started this year. It calls for a continuing study of defense production changes and has the objective of reducing the time needed to resume defense production.

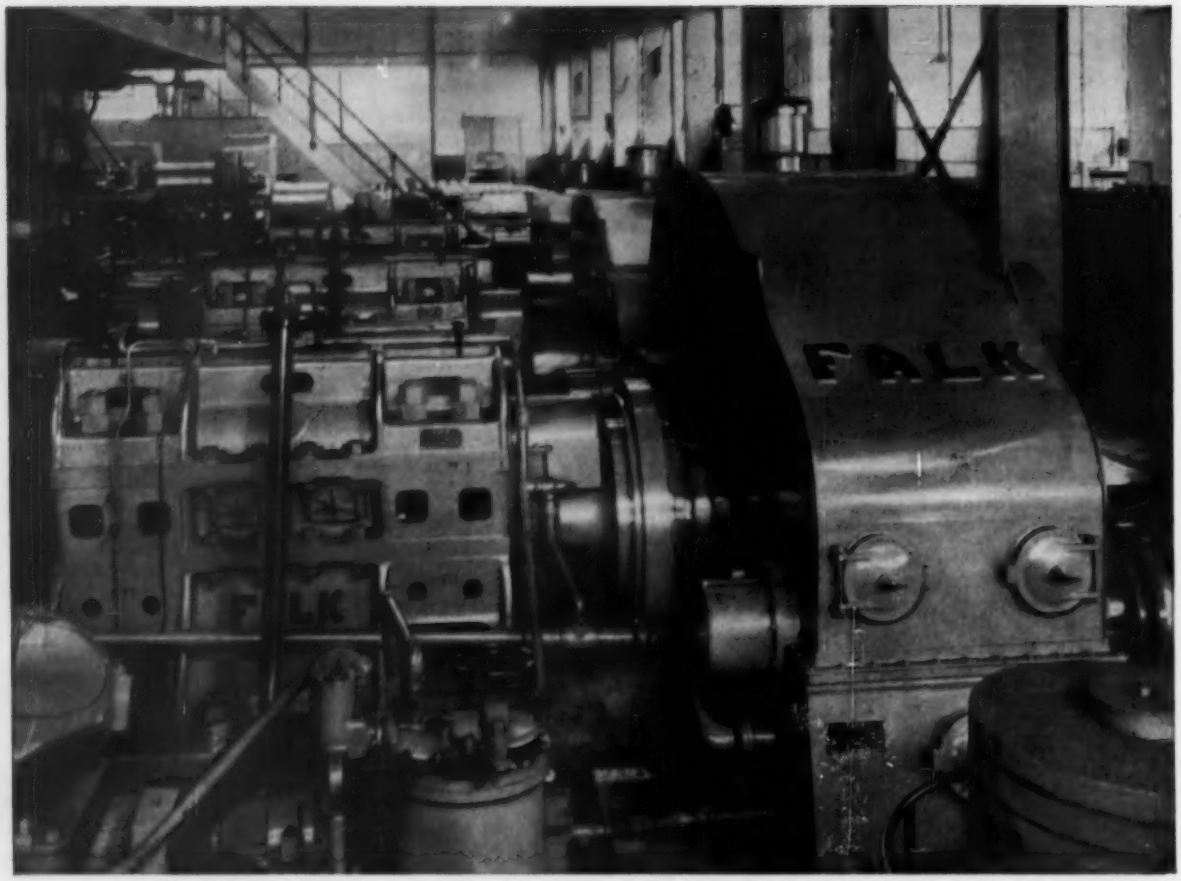
Here's how it works: Both Ford and Fisher Body have completed contracts with the government for the production of M-48 medium tanks, and both firms have been awarded new contracts by the Detroit Ordnance District.

Specifically, the contracts call for three things. 1. Determine the number of parts in the M-48 which have changed since production was halted. 2. Find out if previous production methods and equipment would be adaptable to the current model tank. 3. See if present equipment is capable of producing a certain number of tanks in 1 month.

Through this program, the government will be able to keep defense production plans on a more current basis and eliminate a great many needless delays in case a changeover is necessary.

THE BULL OF THE WOODS — **By J. R. Williams**

COULD YOU PUT IN A WORD FOR ME TO GET ON TH' BIG PLANER? DUFF IS RETIRIN' NEXT WEEK!
WELL, UH, I'LL HAVE TO WAIT TILL I CAN KETCH TH' BULL IN A GOOD HUMOR!
AT LAST HE CAUGHT TH' BOSS WHISTLIN', BUT TH' BOSS WILL NEVER KETCH TH' BULL OF TH' WOODS! HE SINGS, LAUGHS, WHISTLES AN' SMILES INSIDE HIMSELF-- HE KNOWS TOO WELL EVERYBODY IS LAYIN' FOR A BOSS IN A GOOD HUMOR!
OFF GUARD
J.R.WILLIAMS
9-21



"Inside Story" of Better Gear Protection—

EXTREME pressures generated in enclosed reduction gear drives and pinion stands call for a lubricant with high EP characteristics — *Texaco Meropa Lubricant.* The EP properties of this fine oil stand up through the severest service, assure smoother, quieter operation, full protection and longer life for gears and bearings... lower maintenance costs.

Texaco Meropa Lubricant is especially resistant to oxidation and thickening. It does not foam... does not separate in service, storage or centrifuging... protects bearings from corrosion.

A Texaco Lubrication Engineer will gladly give you full information. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Meropa Lubricants

FOR STEEL MILL GEAR DRIVES

TUNE IN . . . TEXACO STAR THEATER starring JIMMY DURANTE on television . . . Saturday nights, NBC.

Will The Iron Curtain Be Lifted?

Soviet bosses don't relish idea of exposing masses to prosperous Americans . . . But trade need brings go-ahead for business visits . . . State Dept. studies eased travel regulations—By G. H. Baker.

◆ STATE Dept. isn't ready to tip its plans yet, but it is quietly setting up rules and conditions under which U. S. businessmen may travel to and inside Communist countries. It's possible that the first permits may be ready for issuance in about four months.

Soviet bosses aren't too keen on the idea of having well-dressed, well-fed Americans on display in the many hungry areas behind the Iron Curtain. But they desperately need to increase their foreign trade.

They're now willing to overcome their fear of foreigners and foreign ideas in order to work out deals for the importation of badly-needed machinery, foodstuffs, and hides.

Ike's foreign-policy experts figure we'll gain substantially by permitting our businessmen to travel in Red satellite countries. Every U. S. citizen will be a walking advertisement—his manners, his clothing, his baggage—for a way of life denied to people behind the Iron Curtain.

May Bar Foreigners . . . Foreign manufacturers will be barred from bidding on certain U. S. government contracts, if a modfied "Buy American" proposal now under study at the White House is put into effect.

There's to be no blanket prohibition against foreign bids, however. It is not true, despite some published statements, that the Eisenhower Administration plans to throw out all bids from abroad.

The modified restriction—if and when it goes into effect—will be called into play in only a limited number of instances.

Came to a Head . . . Situation was brought into focus recently when the Defense Dept. awarded about $7 million worth of contracts for electrical equipment to Westinghouse Electric Corp., although English Electric Co., Ltd., was low bidder by about $1 million.

Pittsburgh, where Westinghouse will build the generators and transformers, is still classified as an area of "moderate unemployment" and therefore was awarded the contracts.

English Electric and the British Government are still squawking about the money they spent in preparing their bids. This led some officials (Secretary of Commerce Weeks is one) to propose telling foreign firms in advance that there's no use in their bidding on contracts sought by U. S. firms that are located in areas of unemployment.

Missiles Will Fly . . . This country is moving closer to guided missiles that will rocket through space at 10,000 mph and make present detection and interception programs almost useless.

Gen. John L. Homer, former commander of an Army guided missile center, says full development of propulsion devices for launching man-made satellites into space will make possible such "fearsome" mechanical birds. These weapons could cross the Atlantic Ocean in from 15 to 30 minutes, he adds.

Personnel and equipment may be sent to an outer space satellite within this decade, Gen. Homer predicts.

Push Bomb Shelters . . . Federal civil defense officials are working overtime to help industry

What's an Education Worth?

Dollar value of a college education, long a subject of debate, has just been fixed at $91,000 by the Census Bureau.

Here's how the government worked it out: Statistics show that an average college graduate, during a lifetime, can expect to earn about $100,000 more than the average high school graduate. Average cost of four years of college is $9000. Therefore, a college education is an investment from which a student can expect a net return of about $91,000.

A college education is no guarantee of higher earnings, the Census Bureau warns. About 25 pct of all college graduates earn less than high school graduates of the same age.

Statistics show that a college education only aids in building the skills which make possible higher earnings. From there on, it's up to the individual to punch his way into the fatter earnings bracket.

Looking for a TOUGHER STEEL?

Unusually tough, even at sub-zero temperatures, Lukens "T-1" steel can reduce equipment costs.

Failure from abrasion or from impact can happen to the steel in your equipment, too. Here's the answer—the tougher steel you've been looking for. Lukens "T-1" steel has excellent resistance to the combination of wear and impact, is tough enough to withstand unusual stresses and pressures as well as shock at either sub-zero or high temperatures, thus lowering maintenance costs and lengthening equipment life.

Equipment builders will find that the techniques of working with this new steel are no different than with carbon steel. Lukens "T-1" steel can be fabricated not only in the shop but also in the field, through proper design procedures. Because of its high yield strength (over 90,000 psi) this new steel offers lighter weight and reduced thickness in comparison to heavier, thicker plates of carbon steel, thereby reducing material, fabrication and shipping costs. And Lukens' range of steel plate sizes—including the widest and heaviest plates available anywhere—makes possible additional savings for equipment builders through the use of wider plates that require fewer welded seams.

The latest addition to Lukens' complete line of carbon, alloy and clad steels, this quenched and tempered alloy plate steel's unusual combination of properties suit it especially to application in pressure vessels, bridges, shipbuilding, construction machinery and general industrial equipment. On problems of design, selection, application and fabricating techniques, Lukens offers full technical assistance. If you would like further information on Lukens "T-1" steel, write for the new 28-page Bulletin 781. Address: Manager, Marketing Service, 772 Lukens Building, Lukens Steel Company, Coatesville, Pa.

LUKENS

"T-1" STEEL

THE NEWEST IN A COMPLETE LINE OF ALLOY STEELS

LUKENS STEEL COMPANY, COATESVILLE, PENNSYLVANIA

sell bomb shelters, but are apparently having little success.

In the latest move to encourage construction of shelters in homes and industries, the Civil Defense Administration is making available plans and specifications for a series of shelters which tested satisfactorily at bomb experiments last spring in Nevada.

Cost of the shelters range from $500 for a family-size shelter to about $16,000 for a protective chamber for as many as 40 persons. Almost all the shelters use steel in some form, from heavy doors and plates to reinforcement for concrete.

The plans are available at all state and regional civil defense offices.

Help:

U. S. sends contracts, loans to flood-hit states.

Some $30 million worth of federal contracts and loans are being pumped into the flood-weakened Northeastern states.

Military contracts alone in the six-state disaster area, where industrial damage is estimated at $157 million, amount to more than $18 million. Added to this sum is another $9 million in emergency flood repair projects to be performed with Corps of Engineers funds.

Dig Up Projects

Small Business Administration disaster loans through mid-September had a total value of $3 million. Contracts placed by the Atomic Energy Commission in the flood zone amounted to more than $860,000.

All the armed forces are reviewing their fiscal 1956 programs to find projects which can be handled by industrial firms in the distressed communities. Military prime contractors are being urged to place subcontracting jobs in those areas.

Connecticut, with 482 concerns reporting $72.5 million in industrial damage, was the most badly mauled state, the U. S. Commerce Dept. reports. The state's brass mills suffered particularly heavy blows, and 32 pct of the nation's brass products output potential was halted for a time.

Massachusetts suffered damage amounting to $66 million. Pennsylvania, New York, New Jersey, and Rhode Island had combined damages of more than $18 million.

Sub:

Government studies blocks to layoff benefit plans.

Government has under study two roadblocks to the Ford-type supplemental unemployment benefit plans (SUB) and indications are that decisions will be announced soon.

Labor Sec. Mitchell is studying a report by a special advisory committee on what recommendations the government should make to the states on changing their unemployment compensation laws to legalize SUB.

Study Tax Block

Most state compensation laws prohibit a worker from receiving outside income while drawing public unemployment pay. The Department's recommendations will be aimed at advising the states on the best method of rewriting their laws to permit SUB.

Internal Revenue Service officials are studying the second roadblock to SUB, although their decision will probably follow the Labor Department's. Most SUB contracts signed this year won't go into effect unless IRS rules that the employer's contribution to the fund is tax deductible.

Push Flood Insurance

Special congressional hearings scheduled to begin after mid-October will deal with proposals for a federal disaster insurance program.

Impact of the hurricanes and floods of August and September has prompted the Senate Banking Committee to plan hearings in Washington, New York, and Providence. Other sites are still to be named. Sen. Lehman, D., N. Y., has been placed in charge of the proceedings.

His staff is drafting a bill recommending insurance coverage applicable to a number of disasters, including flood, drought, and atomic bombing. He expects this bill to be ready when the hearings begin, but he says he will also consider proposals from other sources.

Tentative plans of the committee contemplate testimony by private insurance firms; federal agencies, such as the Federal Civil Defense Administration and the Small Business Administration; and state and local government officials.

Okay Export Credits

Four firms have received credit guarantees from the Export-Import Bank to assist them in financing overseas sales of capital equipment and related services.

Stardrill-Keystone Co., Beaver Falls, Pa., received a credit line of $210,000 to aid in exporting cable and rotary drilling machines.

Buffalo Forge Co., Buffalo, N. Y., received a line of $450,000 for exports of heating, ventilating and air conditioning equipment, machine tools and food mill machinery.

Sciaky Bros., Inc., Chicago, received a line of $100,000 for exports of electrical resistance welding equipment.

Sprout, Waldron & Co., Inc., Muncy, Pa., received a line of $130,000 to export food processing and handling equipment.

Credit lines require an exporter to obtain cash payments of 20 pct of the value of each shipment, and carry 25 pct of the deferred payments itself. The bank guarantees repayment of 75 pct of the deferred payments.

Issue Atomic Permits

Another group of 66 firms has been issued Atomic Energy Commission permits which permit access to restricted data on civilian uses of atomic energy.

The new batch brings the total of access permits to 296, includes The Carborundum Co., Niagara Falls, N. Y.; The Foxboro Co., Foxboro, Mass.; A. P. Green Fire Brick Co., Mexico, Mo.

TO GET MORE SIZES OUT OF A WAREHOUSE THAN YOU PUT IN...

Use These Waterbury Farrel "Experts"

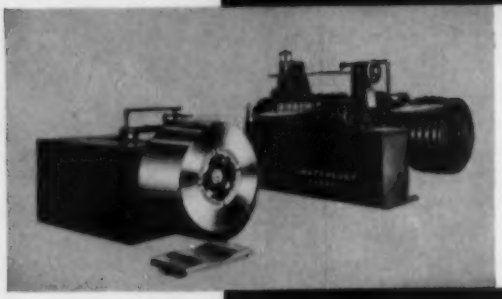
- **Available In Sizes To Fit Your Requirements**
- **Engineered For Efficient Low Maintenance Operation**

These WF units make your strip metal warehouse a streamlined production unit . . . able to produce specified sizes on the spot, from mill coils. You minimize storage space and inventory . . . step up deliveries . . . cut initial costs on shipping and packing . . . meet and beat competition.

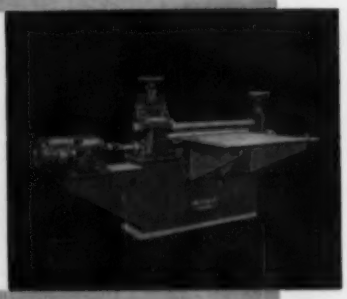
Embodied in each piece of WF warehouse equipment is the up-to-date design and sound engineering which have built Waterbury Farrel's reputation in metal-working machinery since 1851.

Write for further details on any of the units shown or mentioned here.

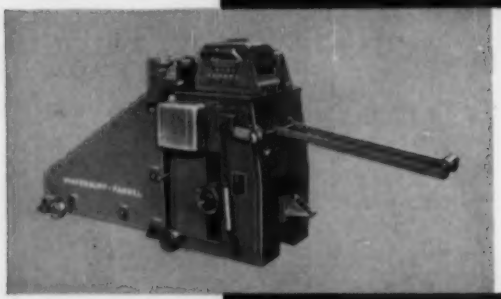
Eleven Roll Straightener. 1⅞" diameter x 14" face rolls. Upper rolls individually adjustable. Straighteners are available in a range of sizes with roll diameters and widths to meet varying requirements.



Gang slitting line consisting of payoff stand, coil lift, slitter and winder—built in various sizes to handle a wide range of gauges and widths.



Gang slitting machine arranged for slitting sheet stock—also available in several sizes.



Portable Roll Feed Straightener With Detachable Coil Box. Has variable speed drive and feed rolls on the front side. Nine 1¼"x 7" rolls. Other sizes available.

18" Motor-driven Cut off Saw for rods and tubes. Fully enclosed, including hinged saw guard.

WF-16

WATERBURY FARREL FOUNDRY & MACHINE CO. • WATERBURY, CONN.

Offices: Chicago, Cleveland and Millburn, N. J.

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POWER PRESSES — Crank, Cam and Toggle; also Rack and Pinion Presses • Eyelet Machines • Multiple Plunger Presses • Horizontal and Hydraulic Presses, etc. **MILL MACHINERY** — Rolling Mills: Strip, Rod, Wire Flattening, (For Ferrous and Non Ferrous Metals) • Also Slitters • Straighteners • Cut-off Saws • Coilers • Winders, etc. **WIRE MILL EQUIPMENT** — Continuous Wire Drawing Machines (Upright Cone and Tandem) • Wire Flattening Mills • Chain Draw Benches • Pointers • Swagers • Bull Blocks • String-up Machines • Spoolers, etc. **COLD PROCESS BOLT & NUT MACHINERY** — Headers (all types) • Rivet Machinery • Trimmers • Thread Rolling Machines • Slotters • Nut Formers and Tappers, etc.

Why West Steel Must Expand

Potential growth of 30 million population in decade . . . Services to take care of expansion will take more steel tonnage . . . Shipments from East continue to grow despite previous steel growth—By *R. R. Kay.*

◆ WATCH FOR Farwestern steel growth to start galloping along at twice the national pace.

Why?

People with money in pocket—some 30 million—are expected here by 1965. They'll make a huge steel-eating market.

It all adds up to this: plenty more steel capacity must come! And local mills now have the best reason ever to expand.

Steel demand will grow from three big sources:

(1) New homes, schools, commercial buildings, bridges, highways, utilities for the surging population. And bigger food processing, petroleum, and transportation industries, too.

(2) Automatic dryers, furniture, automobile parts and components, construction machinery and equipment, and electrical equipment now made here in insufficient quantities. Manufacturing will have to expand.

(3) Steel products now made elsewhere and shipped in will be profitable to produce in the Farwest because of the increased local consumption. Good example: appliances.

One-third of steel consumed here still comes from eastern mills. Annually, some two million tons of manufactured steel products are shipped in. All this despite the huge steel capacity increase here the past 15 years.

Robert E. Oliver, manager, commercial research, Columbia-Geneva Steel Div. of U. S. Steel Corp., San Francisco, says, "The opportunity we foresee for the next ten years is above the capacity additions made in the ten years just past."

More Aluminum . . . Construction of Harvey Machine Co.'s $65 million, 54,000-ton-per-year primary aluminum plant will begin early 1956. Production will get going late 1957, Leo M. Harvey, president of the Torrance, Calif., company told THE IRON AGE.

Harvey has a General Services Administration contract in pocket for this facility at The Dalles, Ore., and Office of Defense Mobilization certificate for fast tax write-off.

Company has long wanted to get into primary aluminum production—has held GSA letter of intent since 1953. The rub: power. Now that Harvey's worked out a Bonneville Power Administration contract, it's full steam ahead.

Deal shapes up like this: (1) Harvey agrees to produce and sell 270,000 tons by June 1963; (2) government has first call on production—what it doesn't need, non-integrated users will get for private use.

Forty thousand kw firm power and eighty thousand kw interruptible power will come from BPA. Harvey is now firming up its bauxite source. Company plans to finance the new plant privately.

"WHAT do you know? We were all fired last week!"

Ore Beneficiation . . . Kaiser Steel Corp.'s iron ore mining facilities at Eagle Mountain, Calif., will get a multi-million dollar addition to the beneficiation plant.

The improvements will upgrade iron ore now mined there. Shipping grade of ore now runs about 55 pct iron content—will be upped to over 60 pct.

"The new concentrating mill means an increase in blast furnace capacity for our Fontana steel mill, since charging a higher grade of ore will mean a higher yield of iron per hour," Jack L. Ashby, vice-president and general manager, said.

Kaiser Engineers, division of Henry J. Kaiser Company, Oakland, Calif., will design and build the new facilities.

Convair Scores . . . It looks as if the U. S. Air Force plans to bank heavily on the delta wing F-102 interceptor. Reports here have it that Convair Div. of General Dynamics Corp., San Diego, has a $400 million contract to produce some 400 of them. This is in addition to two orders it now has for F-102A's and TF-102A's, trainer version. A new top secret pilotless aircraft development contract is also in Convair's till.

Mill circles and angles in one set-up with

tri-
MILLING HEAD
KEARNEY & TRECKER
MILWAUKEE

Pat. No. 2286821
Other Pat. Pend.

Here, operator uses TRI-D Milling Head to perform a variety of intricate milling operations on a workpiece—straight, circular, angular, radii—all in a single set-up. Angular adjustment of cutter in vertical plane is an exclusive feature of TRI-D.

For tool rooms, die shops or production milling — — do it faster, easier with new TRI-D attachment

Kearney & Trecker's new TRI-D Milling Head — featuring rotary, lateral and angular adjustment in vertical plane — is ideally suited for rough and finish milling of various geometric shapes — straight lines, radii, circles, angles — all in a single set-up. It can be easily mounted on almost all horizontal and some vertical milling machines . . . *regardless of make.*

Illustrated here are some of the intricate operations the TRI-D performs.

Learn what the TRI-D can do for you — how different it is from all other types of milling heads in use today. For "proof-positive" demonstration, see your Kearney & Trecker representative. Contact him today, or write Kearney & Trecker Corporation, 6784 W. National Ave., Milwaukee 14, Wis.

Die (left) and punch (right) are rough and finish milled in a single set-up, using all three basic movements of the TRI-D

and milling machine. Prescribed feeds and adjustment of TRI-D is all that's required to finish both workpieces.

Angular setting of TRI-D, with an ordinary end-mill ground to a specific angle, is used to mill the "square corners."

Kearney & Trecker CORPORATION
KEARNEY & TRECKER MILWAUKEE MACHINE TOOLS

Builders of Precision and Production Machine Tools Since 1898

For more information on Kearney & Trecker's new TRI-D Milling Head, write for catalog No. TD-10.

August Sales Showing Surprises

Machine tool orders for month top $64 million . . . Shipments total $48.5 million . . . High sales level follows pattern for year, gives hope of new stability in the industry—By *E. J. Egan, Jr.*

◆ IT APPEARS the machine tool industry is going to have itself a very good business year — for peacetime, that is.

The August new order total for metal cutting machine tools is estimated at about $64.5 million by the National Machine Tool Builders Assn. Statisticians at the association's Cleveland headquarters also predict that shipments for the same month will add up to about $48.5 million.

If actual final totals substantiate the estimates for new orders and shipments, they'll put the lie to an idea that was popular early last summer. This was to the effect that vacation shutdowns plus a natural buyer's preference to "wait for the Machine Tool Show" would put midsummer machine tool business in a tailspin.

Sales Held Up . . . Instead, NMTBA's August estimates show sales following the healthy business pattern that started last December, after a just so-so post-Korea period. Actually, during the first eight months of this year, new orders for metal cutting tools dipped below the $60 million level just once.

That was in April, when the total for the month came to $52.7 million. To counterbalance that slight lapse, May and June both produced better than $70 million.

By contrast, there wasn't a single $60 million month out of the first 11 in 1954. Monthly average for the whole year was a bit under $50 million.

No More Dips? . . . Is the machine tool industry about ready to punch its way out of its traditional "feast and famine" corner? And stay out? Some think that the sales record for this year to date is enough of an affirmative answer. Other builders are hopeful but not yet inclined to make such flatly optimistic predictions.

Nevertheless, there seem to be a few apparent trends toward more financial stability in the overall machine tool picture. A recent rash of mergers and consolidations certainly represents attempts to firm up the financial future.

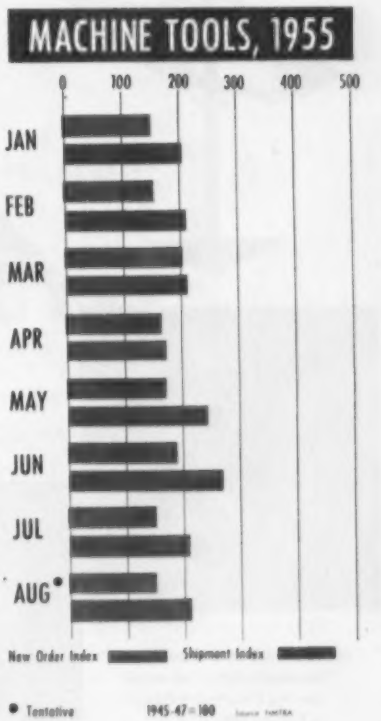
Show Drew Bankers . . . A number of important bankers took the trouble to come to Chicago's Machine Tool Show to see what makes a machine tool tick, and to get a look at this automation thing they've been hearing so much about.

Reports from many builders who met and talked at length with the big money men indicate that the wealthy visitors were most favorably impressed with what they saw.

It could mean that pleas for credit, to expand metalworking facilities or replace obsolete ones, might be listened to with more interest and with happier results for deserving applicants.

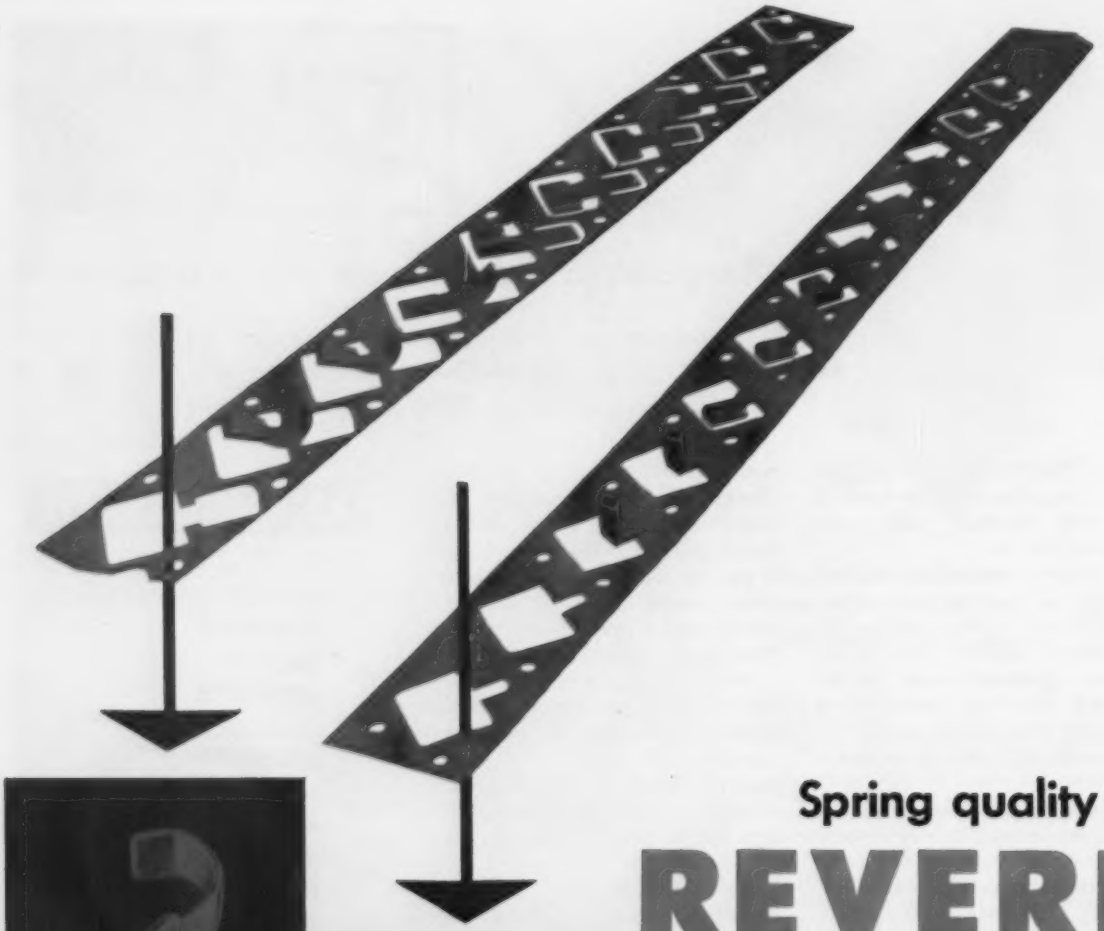
Tax Rules Irk . . . Internal Revenue Service recently issued three new rulings in an attempt to dispel some of the confusion about tax liabilities in the leasing of machine tools.

In analyzing these rulings, bulletin 3311 of the Machinery and Allied Products Institute says that the government guides "leave many unsolved problems."



MAPI's bulletin reprints the IRS rulings in full, grants that they do (1) recognize many economic reasons for leasing; (2) concede that an option-to-purchase clause in an agreement will not, in and of itself, categorize the agreement as a conditional sale; and (3) summarize conditions the taxpayer should avoid in drafting leasing agreements.

On the other hand MAPI cites examples where it says the IRS not only fails to come to grips with typical problems confronting the lessor and lessee, but also raises some serious new implications.



Two types of Krueger and Hudepohl clips, and strips showing progressive stages in fabrication.

Spring quality of

REVERE

PHOSPHOR BRONZE

makes solderless connections possible

It is not always the case that solder has to be used to make good electrical connections. Often phosphor bronze clips can be used, tightness being achieved through the hard-gripping spring quality of this metal. Take the clips made by Krueger and Hudepohl, Inc., Cincinnati 2, Ohio. This company uses Grade A 5% Revere Phosphor Bronze to make its connections for refrigerators, and for submersible pumps and hydraulic control units. Such services require not only tight permanent connections, but the ability to withstand severe temperature variations, as well as vibration. Revere Phosphor Bronze meets the needs perfectly. In developing this application, the Revere Technical Advisory Service collaborated closely with the customer on the important matter of temper required both for fabrication and end use. Krueger and Hudepohl report no rejects. The metal is supplied in the form of strip, one inch wide, and in very long coils, so that down time for coil set-up on each progressive die machine is minimized. Send for your free copy of "Revere Phosphor Bronze," which provides details about qualities, performance, and applications.

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Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.

"The Revere Four-Way Service" is a 16mm sound motion picture in color, interesting and informative. If you would like to see it, write nearest Revere Sales Office.

The Iron Age SALUTES

Thomas J. Bannan **Company and individual development have followed from his policy of dispersing responsibility while insisting on results. He gives advice sparingly but is always worth hearing.**

How does the head of a big company maintain control without stifling the initiative of subordinates? Thomas J. Bannan makes the nice distinction between top executive and department functions in solving this problem.

President of Western Gear Works with its string of plants along the West Coast, Mr. Bannan doesn't attempt to apply detailed supervision. The department head has a free hand. But he must produce. "We want results, not alibis," says Mr. Bannan. At the same time he realizes the best of men benefit from timely and tactful guidance. A graduate engineer, he will appear at a trouble spot, roll up his sleeves and help lick the difficulty. He gives advice only when asked, is rarely caught without a useful suggestion. Company as well as individual development has resulted from his policy of dispersed responsibility with discreet guidance and stress on results.

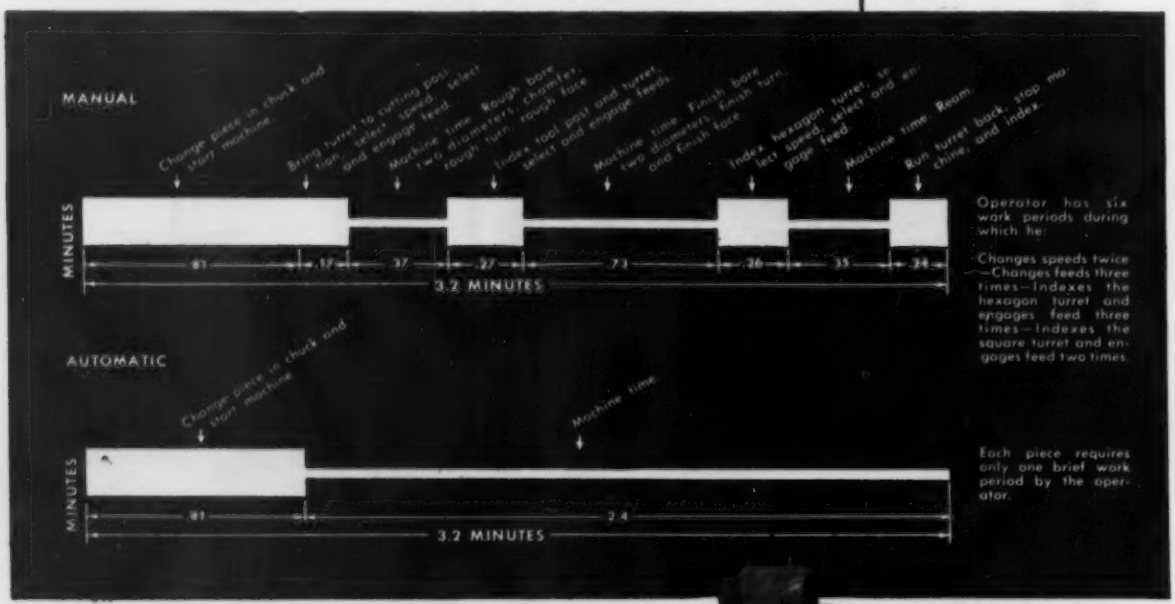
Mr. Bannan was born in San Francisco, worked one year as a machinist after high school and went on to engineering studies at the University of Santa Clara. Receiving an ME degree in 1923, he went to work with Pacific Gear & Tool Works as an engineer and salesman. Western Gear Works in Seattle was acquired in 1929 and he was named vice president and general manager. Under his guidance, Western expanded product lines and extended operations to include the present six plants.

Mr. Bannan is president of Webster-Brinkley Co.; owner and president of Hallidie Machinery Co.; vice president of Air Mac, Inc.; vice president of Berger Engineering Co. He holds other company posts, is a member of the University of Washington Business Administration Advisory Committee, has been chairman of the Seattle University Board of Regents since 1950. He served two periods on the board of directors of the National Assn. of Manufacturers, was a national vice president for three years. In addition, he served as president of the American Gear Manufacturers Assn.

Mr. Bannan is the oldest of five brothers. He lives in Seattle, spends much time at company executive offices in Lynwood, Calif.

how the GISHOLT FASTERMATIC saves man-minutes and money!

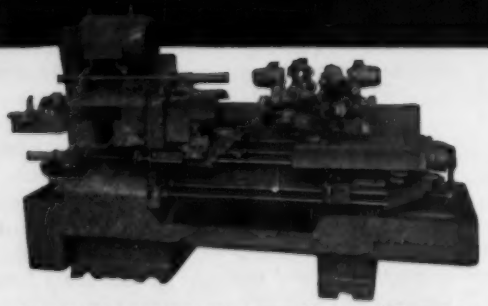
Here is an actual comparison of the time and work cycle of a manually operated turret lathe and a Gisholt Fastermatic Automatic Turret Lathe. The machining of wheel hubs, shown above, requires 6 operations as follows: rough bore, finish bore, ream, rough face, finish face and chamfer. Note that the manually operated machine takes over 54% of the operator's time whereas the Fastermatic takes only 25% of his time, leaving 75% without interruption.


MANUAL
Change piece in chuck and start machine
Bring turret to cutting position, select speed and engage feed
Machine time. Rough bore two diameters, chamfer, rough turn, rough face
Index tool post and turret, select and engage feeds
Machine time. Finish bore two diameters, finish turn, and finish face
Index hexagon turret, select speed, select and engage feed
Machine time. Ream
Run turret back, stop machine, and index
MINUTES
.81
.17
.37
.27
.73
.26
.33
.24
3.2 MINUTES
Operator has six work periods during which he:
Changes speeds twice—Changes feeds three times—Indexes the hexagon turret and engages feed three times—Indexes the square turret and engages feed two times.
AUTOMATIC
Change piece in chuck and start machine
Machine time
MINUTES
.81
2.4
3.2 MINUTES
Each piece requires only one brief work period by the operator.

That's the story of the Fastermatic in a nutshell—less work time for the operator. The Fastermatic handles all changes of feeds and speeds automatically.

In this case, for example, the other side of the work piece is done by another Fastermatic with substantially the same cycle. One operator keeps both machines constantly under cut and still has ample time for stacking and work inspection. Important, too, is the fact that both Fastermatics are tended by a comparatively unskilled operator.

There are many such cases where Fastermatics can cut costs substantially. Gisholt engineers will gladly answer your questions. Write us.



THE GISHOLT 1-F FASTERMATIC—*smallest of 3 different sizes which enable you to machine a maximum number of surfaces in one chucking, handling all changes in speed and feed automatically. On this job, turret was double-tooled so that two parts were completed with each revolution of the turret. Ask for literature.*

GISHOLT MACHINE COMPANY

Madison 10, Wisconsin

THE GISHOLT ROUND TABLE *represents the collective experience of specialists in the machining, surface finishing and balancing of round and partly round parts. Your problems are welcomed here.*

The Iron Age INTRODUCES

Dr. Paul Bachman, elected vice-president and director, Research and Development, **Koppers Co., Inc.,** Pittsburgh.

F. E. Bickel, appointed general manager of sales, **Van Huffel Tube Corp.,** Warren, O.

R. C. Garlick, will devote full time to his duties as assistant vice-president, **Sharon Steel Corp.,** Sharon, Pa.

L. G. Danielson, appointed district manager, Industrial Div., **Harnischfeger Corp.,** Milwaukee.

Charles A. Bailey and **Robert T. Haigh** have been assigned as field engineers, **Norton Co.,** Teterboro, N. J., and New York. Other field engineer appointments include **Joseph A. Kwasniewski,** Philadelphia; **David L. Lloyd-Rees,** Pittsburgh; **Roland L. Jandron,** and **John D. Seguin,** Chicago; **William E. Oliver,** St. Louis.

John O. White, sales engineer, Foundry Dept., **Baldwin-Lima-Hamilton Corp.,** Philadelphia.

William S. Springer, promoted to chief engineer, Tennessee Coal & Iron Div., **U. S. Steel Corp.,** Birmingham, Ala.

Enders M. Voorhees, elected president, Board of Trustees, **New York Trade School.**

Clifford A. Hampel, manager, Chemical Equipment Div., **Fansteel Metallurgical Corp.,** Chicago.

Henry E. Heddesheimer, consultant, electrical engineering, **General Electric Co.,** Plant Engineering and Maintenance Services, Schenectady, N. Y.

George R. Trumbull, appointed general sales manager, **Westfield Manufacturing Co.,** Westfield, Mass.

Donald C. Morgan, named central regional sales manager, **Rockwell Manufacturing Co.,** Pittsburgh.

David L. Yabroff, named manager of Market Development Dept., **Shell Chemical Corp.,** New York.

Joseph A. Hand, made district representative, **The National-Standard Co.,** Niles, Mich.; **Jack J. Gruber,** named district representative, Cleveland.

William N. Rathbun, named plant facilities engineer, **Temco Aircraft Corp.,** Dallas; **James F. Parrish** appointed chief industrial engineer.

V. L. Spinney, appointed manager, Processing Machinery Dept., **Allis-Chalmers Industries,** Cleveland; **N. W. Landis,** named manager, New York district, and **A. J. Mestier,** manager, Detroit.

W. Lunsford Long, elected president of three companies in the mining industry, **Haile Mines, Inc., Tungsten Mining Corp.,** and **Manganese, Inc.,** New York.

JAMES M. DARBAKER, elected president, Copperweld Steel Co., Pittsburgh.

LAWRENCE F. WILLIAMS, elected president, The Cooper-Bessemer Corp., Mount Vernon, Ohio.

JAMES E. BROWN, elected secretary, Cooper - Bessemer Corp., Mount Vernon, Ohio.

GEORGE BAILLIE, JR., named sales manager, Rolling Mill Div., E. W. Bliss Co., Salem, Ohio.

G. Lawton Johnson, elected president, **Greer Marine Corp.,** Jamaica, N. Y.; **Edward M. Greer,** was named chairman of the board.

Raymond J. Dunn, Jr., elected vice-president, **Machinery Engineering and Sales Co.,** Hartford and Providence, Conn.

Donald J. Newman, appointed labor relations administrator, **Crucible Steel Co.,** Pittsburgh.

Paul L. Bruhn, appointed division manager, **Republic Steel Corp.,** Berger Div., Canton.

F. H. Williams, appointed manager Railway Dept., **SKF Industries, Inc.,** Philadelphia.

Norman W. Calkins, appointed assistant manager, Tool Steel Sales and assistant to vice-president, **Universal - Cyclops Steel Corp.,** Bridgeville, Pa.

Robert Frothingham III, appointed assistant to the president, **Silver Creek Precision Corp.,** Silver Creek, N. Y.

Rear Admiral Harry B. Temple, USN, named assistant vice-president of **Robertshaw-Fulton Controls Co.,** Greensburg, Pa.

George F. Holland, named chairman of the board, **Union Twist Drill Co.,** Athol, Mass.; **Stanley Holland** was named president; **Simon MacKay,** reelected vice-president; **John C. Molinar,** named vice-president in charge of sales; **Rossiter Holt,** named vice-president and general manager, S. W. Card Plant; **John Engelsted,** named vice-president in charge of production; **William E. Loy,** reelected treasurer.

Richard C. Campbell, appointed assistant to C. R. Schroder, manager of **Metal & Thermit Corp.,** New York.

W. J. McCUNE, appointed general manager of sales, Sharon Steel Corp., Sharon, Pa.

WILLIAM H. LANG, appointed assistant vice-president, U. S. Steel Corp.

RALPH W. UPDEGRAFF, named chief industrial engineer, The Timken Roller Bearing Co., Canton, Ohio.

C. I. LITTLE, appointed manager, erection department, Kaiser Steel Corp., Montebello, California.

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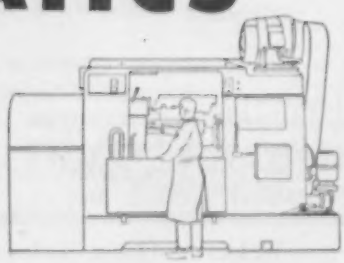

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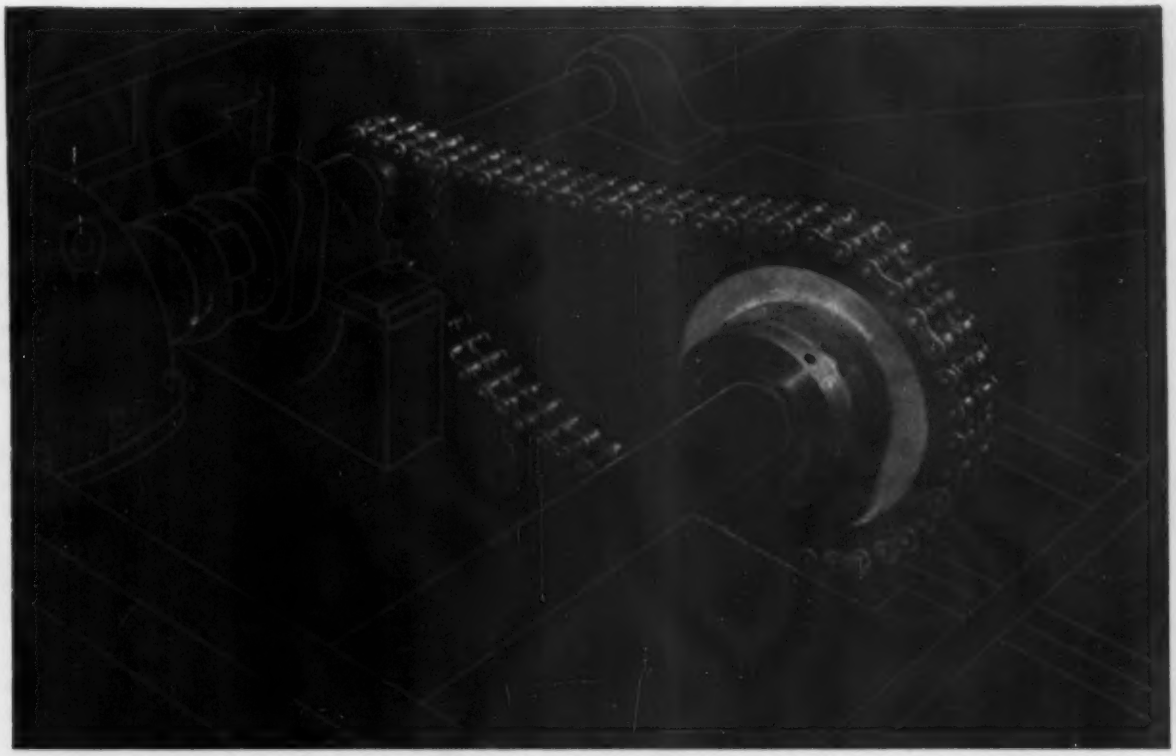
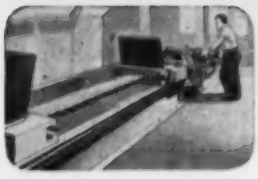
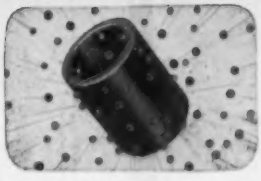




PRE-STRESSING of multiple width chain provides uniform load distribution.



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Tempron Hard Rubber is recommended as the best plating barrel cylinder material now available, but its characteristics require special construction. Udylite's new construction (patent pending) features interlocking panels and ribs with the added advantage that panels, ribs, rails and cylinder heads are individually replaceable.

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PERSONNEL

R. V. Burnette, appointed district sales manager, **Rockwell Manufacturing Co.,** Chicago.

John T. Hughes, appointed assistant sales manager, **Universal Atlas Cement Co.,** New York.

John F. Bramham, appointed manager of sales, and **Hugh C. Bailey** to manager of planning and production, Pilgrim Drawn Steel Div., **Automotive Materials Corp.,** Detroit, Mich.

J. A. Lindberg, named regional sales manager, brass products, Metals Div., **Olin Mathieson Chemical Corp.,** New York.

John C. Dawson, appointed area manager, **U. S. Steel Homes, Inc.,** New York.

Gene Romano, appointed sales representative, Industrial Div., of the **R. D. Werner Co.,** Greenville, Pa.

Philip C. Cook, appointed sales manager of Truck Div., **The Howe Scale Co.,** Rutland, Vt.

R. C. Harrison, appointed assistant treasurer, **Copco Steel & Engineering Co.,** Detroit, Mich.

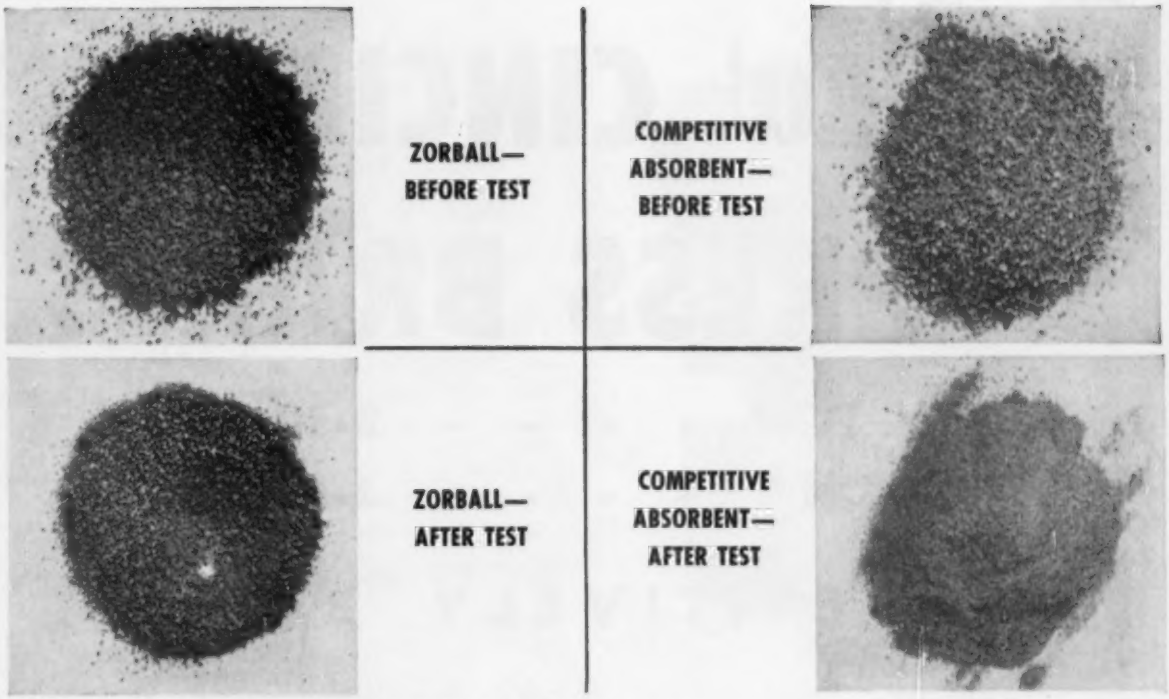
Dr. Lawrence R. Hafstad, director of the General Motors Research Staff, vice president of **General Motors Corp.**

J. Richard Hallock, appointed general purchasing agent, Special Products Div., **Ford Motor Co.,** Detroit, Mich.

N. P. Synnestvedt, appointed plant manager, Manistee Iron Works Div., **Michigan Tool Co.; J. G. Maurer,** appointed shop superintendent.

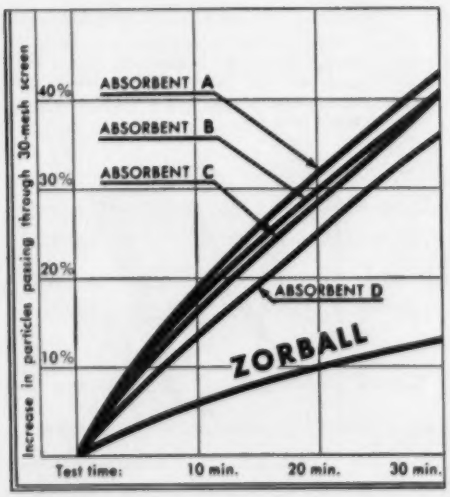
Peter L. Brett, appointed sales representative, Metals Div., **Olin Mathieson Chemical Corp.,** New York.

William Spangler, appointed head of new Kansas City sales office, and **M. H. Eberle,** appointed sales engineer, Chicago office, **Resistoflex Corp.,** Belleville, N. J.



Laboratory abrasion and crush test made on ZORBALL and competitive floor absorbent. *Top:* Both look very much alike when new. *Bottom:* But after 30-minute test, see the difference! ZORBALL is still granular, skidproof. Competitive absorbent is a powdered dust!

Crush tests prove Zorball Floor Absorbent resists breakdown longer, keeps floors safer!



Graph of abrasion-crush tests using ZORBALL and four other leading floor absorbents. Curved lines show rate of breakdown, prove ZORBALL stands up best under severe punishment!

Here's dramatic proof that Wyandotte ZORBALL is the safest, lowest use-cost floor absorbent you can buy . . . a laboratory test that duplicates the crushing that absorbents actually receive "on the job."

ZORBALL is safest, because its rugged, *angular* particles resist breakdown. ZORBALL is nonflammable; absorbs oil, grease, water, paint, ink, and chemicals. ZORBALL retains its anti-skid properties under heavy traffic or extremely wet conditions without mudding, caking, or dusting. ZORBALL lasts longer, goes farther, costs less to use!

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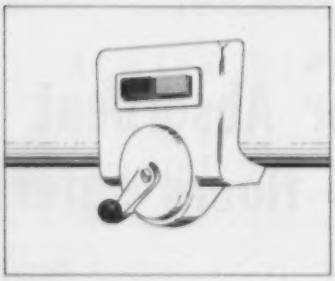
Wyandotte CHEMICALS
J. B. FORD DIVISION

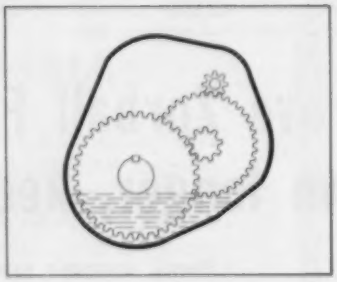
2 New CINCINNATI PRESS BRAKES

THIRTY TON - - - - 2-30 SERIES
FIFTY TON - - - - 3-50 SERIES

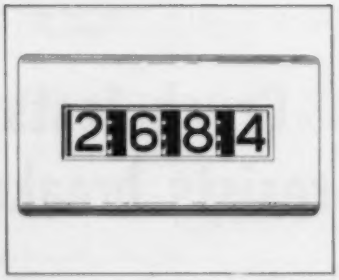
COMPETITIVELY PRICED



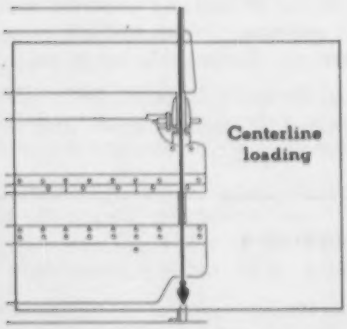
Front controlled, variable speed drive, 20 to 50 strokes per minute.



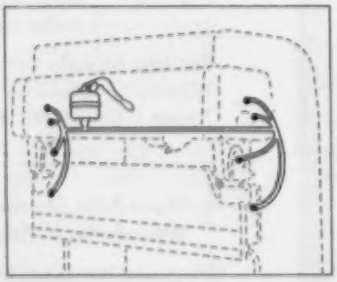
Completely enclosed transmission, running in oil.



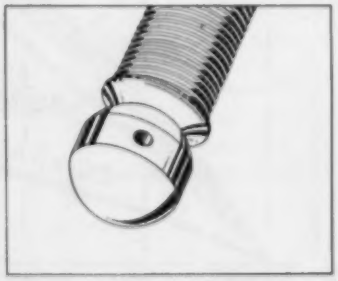
Two micrometer indicators, one at each end of the ram—easy to read and accurately record the amount of adjustment and tilt.



Centerline loading prevents weaving of the housings and insures accurate bends.



Centralized pressure lubrication system.



Ball end on the ram adjusting screws permits taporing of the ram for fade-out work.

THE CINCINNATI SHAPER CO.

CINCINNATI 25, OHIO, U.S.A. SHAPERS • SHEARS • BRAKES

2-30 SERIES

This new 2-30 Series Cincinnati All Steel Press Brake has a capacity of 14 gauge x 6′ mild steel.

Look at these unusual standard features:

2½″ stroke—12″ shut height—9″ throat.

Distance between housings 5′-2″—overall die surface, 6′-0″.

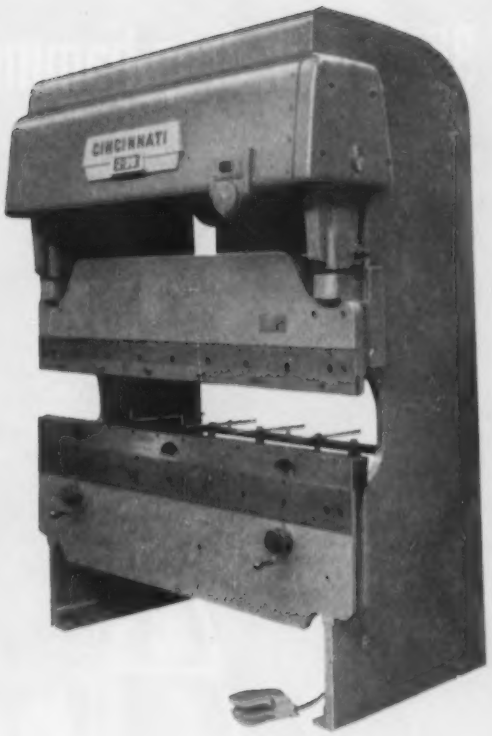
Front controlled, variable speed drive, 20 to 50 SPM. 4″ manual ram adjustment including ram tapering adjustment for fade-out work (power adjustment available as extra feature).

Bronze swivel end-guide bearing for accurate endwise alignment, even when tilting ram.

Brushless electro-magnetic brake and clutch.

Deep bed and ram, planed and drilled for 5¾″ angles.

Micrometer indicators on both ends of ram for fast, accurate setting.



3-50 SERIES

These new 3-50 Series Cincinnati All Steel Press Brakes are built in two lengths and have a capacity of 10 gauge x 6′ mild steel. Investigate these unusual standard features: 3″ stroke—12″ shut height—12″ throat—distance between housings 6′-6″ or 10′-6″—overall die surface 8′-0″ or 12′-0″—front controlled, variable speed drive, 20 to 50 SPM.

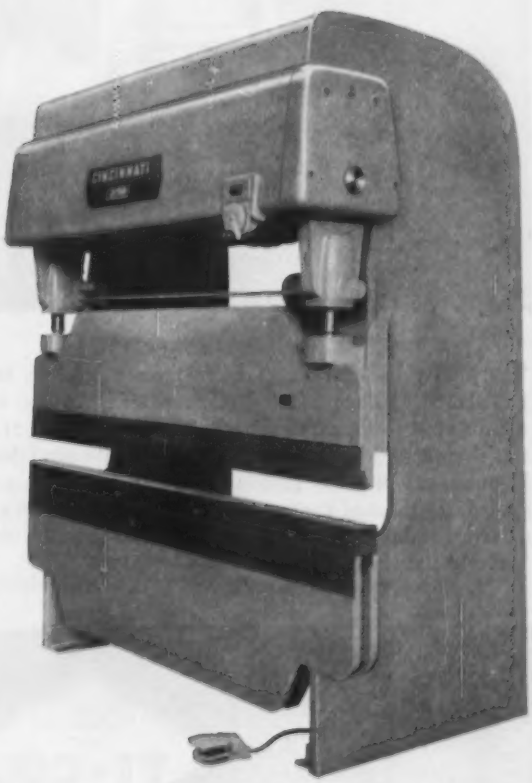
5″ motorized ram adjustment, including ram motor and control, complete with ram tapering adjustment for fade-out work.

Bronze swivel end-guide bearing for accurate endwise alignment, even when tilting ram.

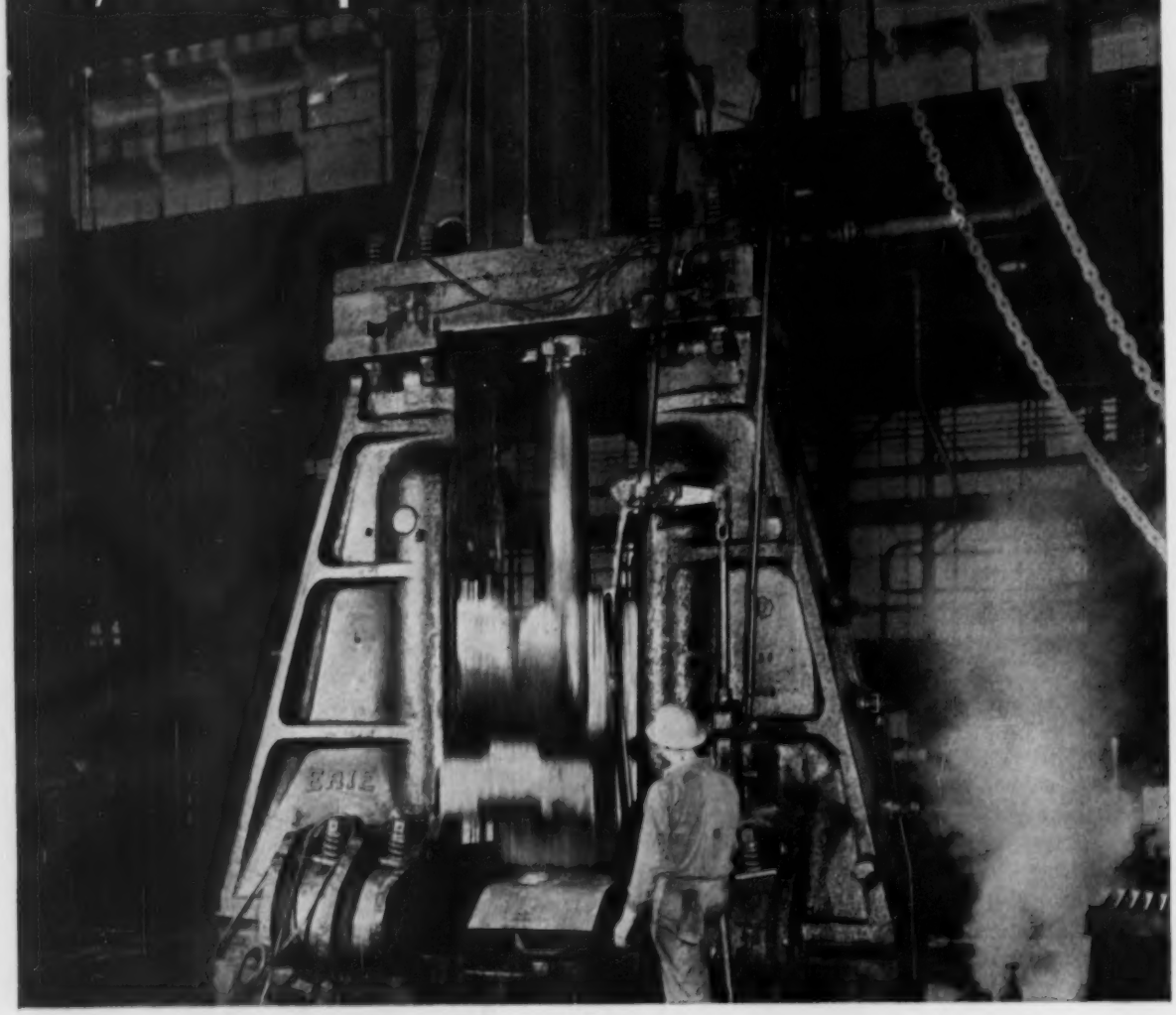
Brushless electro-magnetic brake and clutch.

Deep bed and ram, planed and drilled for 5¾″ angles.

Micrometer indicators on both ends of ram for fast, accurate setting.

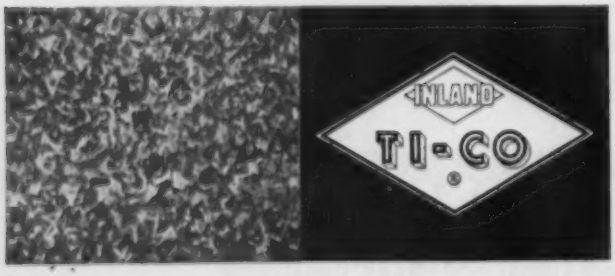


35,000-lb. drop-hammer fails to flake Inland TI-CO®



The ability of Inland's TI-CO galvanized steel to take punishment without flaking of the zinc coating was recently put to the supreme test. A sample sheet of TI-CO was slugged with a lethal blow from a 35,000 pound drop-hammer, one of the largest in the world. When the dust settled, the piece of TI-CO was carefully examined for any evidence of flaking. None was found! TI-CO took the blow in stride and the zinc coating stayed put!

Unlike ordinary galvanized sheets, the protective zinc coating on Inland TI-CO, produced by the patented Sendzimir process, will not crack, flake or peel when stamped, crimped, double-seamed, brake formed or even when formed by spinning. This flexible, uniform coating means that products made with TI-CO are easier and cheaper to produce because re-dipping after forming is eliminated. And they stay serviceable and good-looking longer, too!



It will pay you to specify Inland TI-CO for all your galvanized steel requirements. INLAND TI-CO . . . with the zinc coating that rolls with the punch.

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Iron Age
FOUNDED 1855
TECHNICAL ARTICLES

Affects working level—

Reverse Ventilation Solves Plant Heat Problems

◆ Adequate ventilation in both winter and summer is often a problem in wide, low-roofed, modern one-story plants . . . While perimeter areas are comfortable, powered roof air exhaust units may not meet interior ventilation needs.

◆ Problems of this kind can often be solved by a new ventilating technique . . . Roof ventilators operating in reverse blow down fresh air to blanket the working floor . . . Adjustable diffusers circulate the air at the floor level to meet seasonal needs . . . Units can be strategically placed to take care of spot problems.

By **B. R. SMALL**, Staff Engineer, Mechanical Engineering Dept., Aluminum Co. of America, Pittsburgh

• THE NEW LOOK in industrial buildings is obtained by making them wider and longer and using lower roof heights.

These wide, one-story structures, however, often fail to respond to conventional ventilation practices. Powered roof exhaust ventilators, although carefully sized according to calculated heat loads, may not dispel the internal heat. While fresh air is vigorously drawn in through open ventilating sash, and perimeter areas are comfortable, the central portion of the building still remains hot.

A heat problem like this can often be avoided by a fairly new technique. The answer lies in roof ventilators operating in reverse to blow down large volumes of fresh air to blanket the working floor. These units can be placed in work areas to meet heat relief needs resulting from equipment, number of employees and manufacturing operations.

The next step in solving the problem is to insure the most effective use of the air supplied. Air circulation at the working floor level is an important need where such heat problems exist.

Through the use of diffusers, moving air can be adjusted by the operating personnel with little difficulty or expense. Directional controls can produce a stimulating breeze during the hottest days, or prevent air motion in cool weather.

Large volume units needed

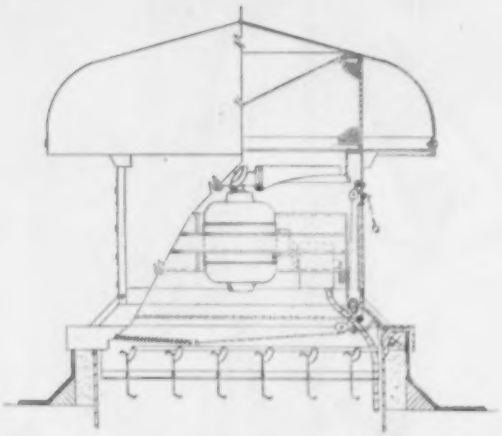
When is forced air supply needed? Roof exhaust ventilators in most cases are entirely adequate for summer air change in conventional open buildings. But, when the width of an open building exceeds 300 or 500 ft, depending on internal heat intensity, then the powered roof exhausts will often fail to relieve interior areas. Low roof shops having a width in excess of fifteen times its roof height will be particularly penalized. It is at this point that large volume fresh air supply units become necessary.

A good example of this ventilating method is the Aluminum Co. of America's new screw machine products plant at Lancaster, Pa. This one-story structure, about 400 ft wide x 500 ft long and only 21 ft roof high, is built with very few windows. It has neither cross circulation nor natural ventilation. Considerable heat is released by some 1200 connected hp motors in two enclosed areas, plus several heat treating furnaces.

The plant is not air conditioned; yet, is a pleasant place to work due to specialized forms of industrial hygiene and confort ventilation. Floor level ventilation provides fresh air adequately and inexpensively. Ventilation of another sort controls an oil mist haze problem.

The screw machine department at the plant, encounters heat and oil mist from a 500 hp

ROOF AIR supply and exhaust ventilators used at Alcoa's screw machine products plant.



ROOF air supply ventilators of 18,000 cfm capacity are strategically located over hot areas in the plant.

connected load within an area 90 ft x 210 ft x 21 ft roof height. In summer, four roof supply ventilators furnish about 72,000 cfm of air from above the roof which produces a 5½ minute air change or 11 changes per hour. Another 50,000 cfm is provided during both winter and summer by a central station that filters, and in winter tempers, outside air. This make-up air permits the oil mist exhaust to function.

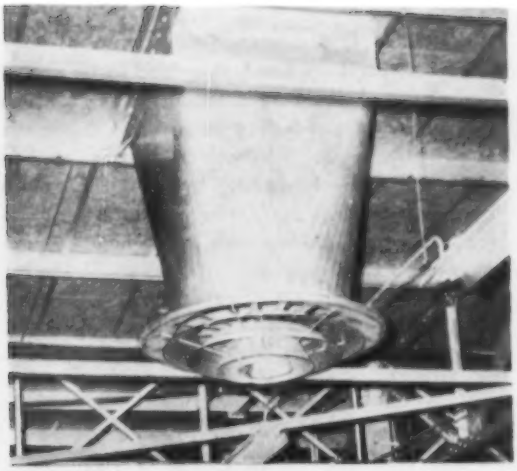
The amount of air supplied is based on heat release from motors and from lights sufficient to produce an air temperature rise in summer of about 5°F. Thus, this amount of air will be exhausted at less than 95°F through roof ventilators when it is 90°F outdoors.

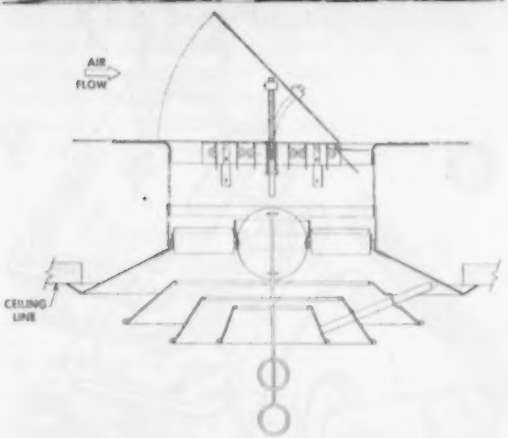
The rivet department which is 40 pct larger than the screw machine department contains a 700 hp connected load. This results in about the same unit heat release and the same rate of summer air change. There are nine roof air supply ventilators here.

The remaining area in the plant, about 50 pct of the total, contains light duty manufacturing inspection, services and storage. It is

On diecastings—

• Diecast parts are being assembled faster and at lower cost at the Bendix Products Div., through





DIFFUSER, top, permits employees to control air direction to suit seasonal requirements. Drawing is shown below.

furnished with twelve roof supply ventilators for summer fresh air in addition to approximately 80,000 cfm of continuous central system filtered air ventilation.

For the entire building, there are 25 air supply ventilators with a total of 425,000 cfm capacity and three air supply duct systems with a total of 205,000 cfm capacity. This equipment provides 630,000 cfm of fresh air for a building which has 4,200,000 cu ft.

Offsetting this supply volume, are exhausts for the anodizing tanks and washing equipment in addition to the 24 roof exhaust ventilators with a total of 480,000 cfm capacity. The installed cost of roof supply and exhaust ventilators, three central systems and mill unit heaters was about $210,000.

To control oil vapor, the rivet and screw machine departments are supplied with fresh air all year round. Heating the outside air in winter calls for a floor-mounted fan, filter and heating coil with overhead distribution duct, one to each department. At any time, the nominal 65,000 cfm capacity of each system can be reduced easily and quickly during partial plant operation by a fan variable inlet vane adjustment.

Alcoa now has roof air supply installations, without filtering, at four plants and all reports have been favorable to date.

The roof supply ventilator used in the plants is simply constructed, inexpensive and low in power consumption. Its all-aluminum design consists of a stack fan tied down to a roof curb and covered with a rugged umbrella. It is designed to withstand an 80 mph wind.

Its price is comparable to any powered roof ventilator since it costs no more to run a motor backwards and place its propeller fan upside down. The 2 or 3 hp motor required for delivery of 18,000 cfm places it almost in the class of an ordinary industrial wall fan.

Strategically located over various hot areas, these 18,000 cfm supply units at Lancaster need no long horizontal duct runs to reach air intakes in outside walls. Each unit has its own roof curb opening with an intake at the proper elevation. Neither fan penthouses nor high level intakes are needed to avoid the heating effect of the hot roof surface. Tests taken with thermometers and with temperature recorders during about 85°F weather, show only slight roof heat pickup.

In addition to controlled circulation a unique feature of the system is the greater floor coverage obtainable with a discharge stream of air. A roof supply ventilator with a downcomer duct and suitable air diffuser, or air grilles, can cover ten to twenty times more floor area with a useful air circulation in summer than a similarly located roof exhaust ventilator of the same capacity since discharged air creates a stronger disturbance.

To insure that the air motion under these roof supply units at Lancaster was adjustable, a 48 in. diameter ceiling diffuser of 18,000 cfm capacity was installed. This aluminum diffuser, located 15 ft above the floor, can be adjusted by employees to blow down briskly for local cooling in summer with floor velocities up to 200 fpm, or horizontally at other times.

The principles of a mechanical air supply system with adjustable air distribution whether central fan stations, heavy duty unit heaters, or roof supply ventilators are selected, are growing in acceptance.

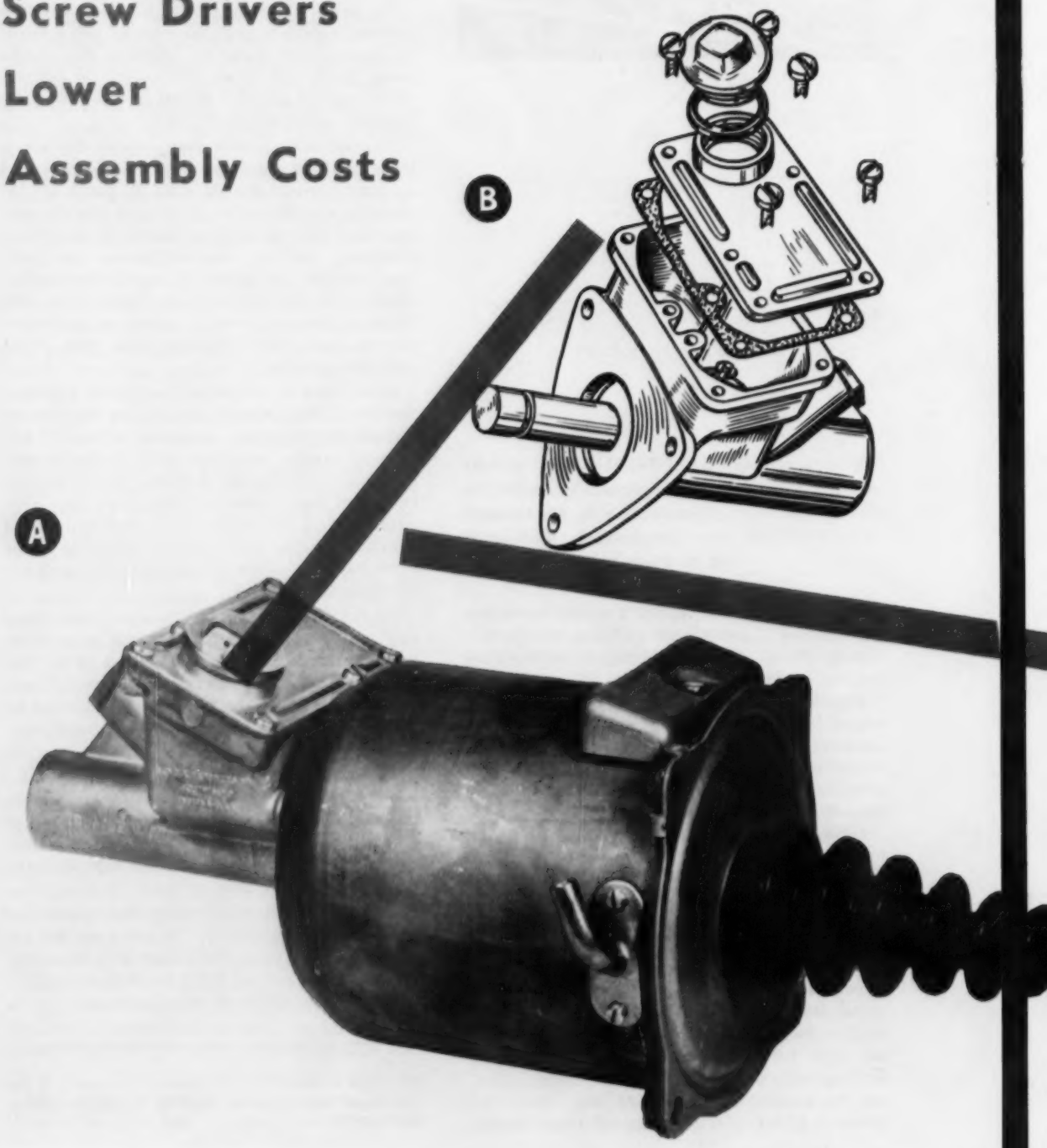
In winter, both of the first two types can supply heated outside air to make up for air volumes lost by dust collection and fume exhaust. In summer, all three methods distribute fresh air with maximum air circulation.

This article is based on a talk given by the author at the 19th Annual Meeting of the Industrial Hygiene Foundation, Mellon Institute.

By W. M. HANNEMAN,
Executive Engineer,

◆ Diecast parts are being assembled faster and at lower cost at the Bendix Products Div., through the use of thread-cutting screws and automatic screw drivers . . . What's more the method increases product quality by providing much stronger fastenings . . . Other advantages include reduced manufacturing costs by eliminating tapping and thread gaging.

Automatic Screw Drivers Lower Assembly Costs



two purposes: it provides a sharp, serrated cut-

operation, the cost of taps and keeping them

By W. M. HANNEMAN,
Executive Engineer,
Shakeproof Div., Illinois Tool Works,
Elgin, Ill.

◆ DIECASTINGS are used extensively in the manufacture of present-day automobiles for such parts as power steering, power brakes and automatic gear shifts. Volume is usually very high, and competition is keen.

Assembly costs are critical in the production of these articles. Because of intense competition, any cost saving method of production is worthy of study. When a better product results from a cheaper method of assembly, the study becomes doubly valuable.

Because of their high production volume, Bendix Products Div. of Bendix Aviation Corp. has found the use of diecastings greatly to their advantage. Bendix has its own diecasting plant which produces enormous quantities of castings each day.

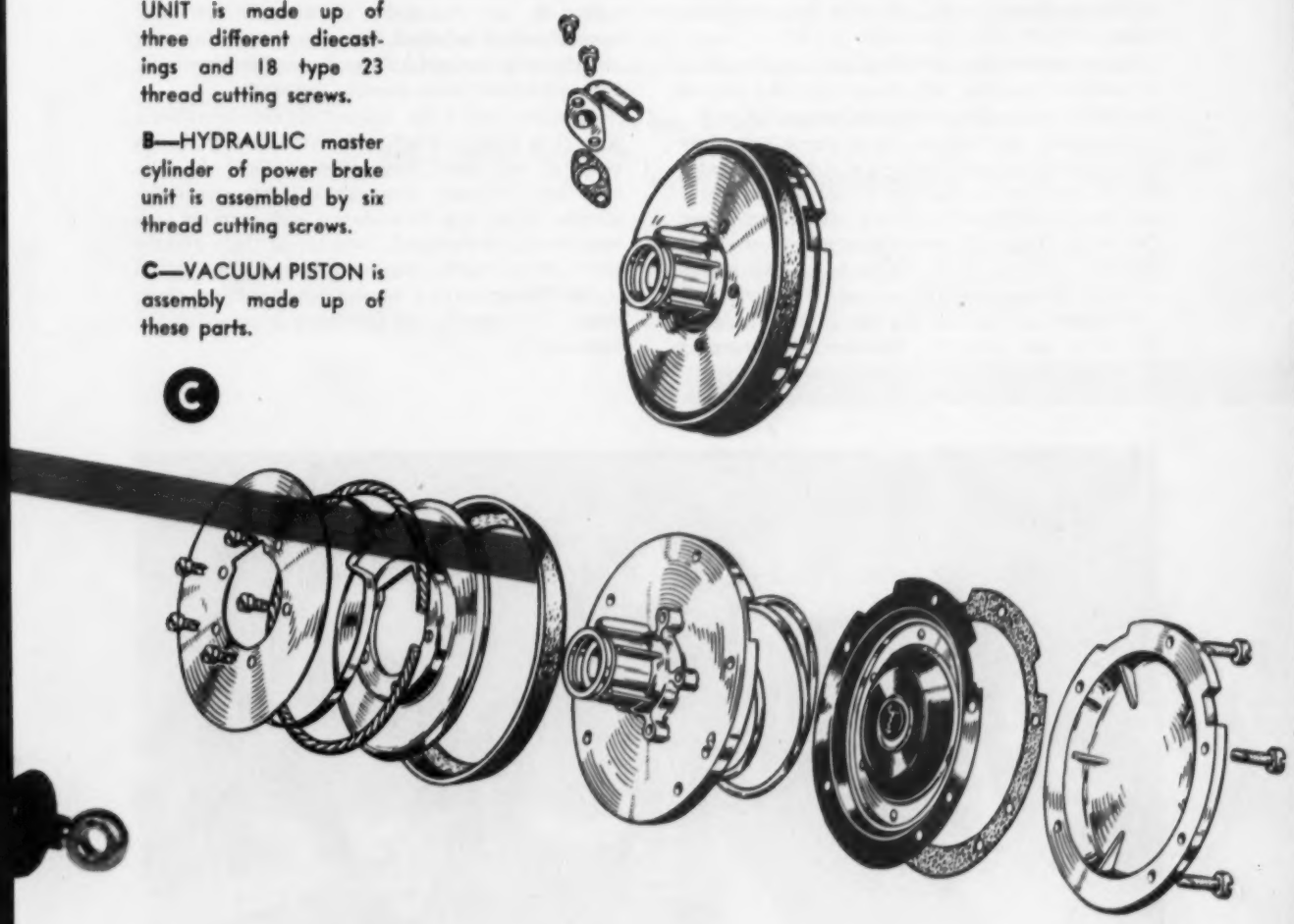
The company has also found that the use of thread-cutting screws, together with automatic screw driving machines, gives them high quality fastenings as well as a satisfactory low cost.

A tapping screw known as "Type 23" (proposed ASA Type "T") is ideally suited for use in die castings. This screw has standard screw threads with a tapered point similar to that of a tap. A wide slot in the end of the screw serves

A—POWER BRAKE UNIT is made up of three different diecastings and 18 type 23 thread cutting screws.

B—HYDRAULIC master cylinder of power brake unit is assembled by six thread cutting screws.

C—VACUUM PISTON is assembly made up of these parts.



Austenitic grade tested—

two purposes: it provides a sharp, serrated cutting edge; it gives ample chip clearance room and deflects the chips ahead of the screw. The slot is positioned off center so that the cutting edge presents an acute angle to the work. This results in a free cutting action similar to the rake angle put on turning tools for soft materials.

One of the many products made by Bendix at their South Bend, Ind., plant is the Treadle-Vac power brake unit for passenger cars. Included in its construction are 3 different diecastings and 18 Type 23 thread-cutting screws. The parts that must be assembled to make the vacuum piston are shown on p. 63.

This assembly is done on short conveyor lines. The parts to the right of the main piston body are assembled on a bench by an operator and temporarily held together with a simple clamp. The assembly is placed on a belt conveyor and delivered to the next operator who positions it on a simple, rotatable fixture attached to the table of a Shakeproof power screw driver. On this machine five Type 23 thread-cutting screws are quickly and solidly driven home.

Again placed on the belt conveyor, they pass to another operator who assembles the rest of the parts and again places the assembly on the conveyor for delivery to the next station. Here the assembly is positioned on a simple rotatable fixture attached to another power screw driver and five more Type 23 screws are driven home. Two more Type 23 thread-cutting screws hold the hose connection to the side of the piston assembly to complete the assembly.

No holes are drilled for the screws, because the holes are diecast. However, the tapping operation, the cost of taps and keeping them sharp, together with a tapping machine and fixtures for holding the part, are all eliminated. Also, the gaging of threads was not necessary. The hardened screws gave a much stronger fastening.

The hydraulic master cylinder portion of the power brake unit is assembled by resting the main casting in a simple fixture on the table of a power screw driver. The gasket and cover are lined up with a pin dropped in one hole, and the six Type 23 thread-cutting screws are inserted.

Another of the many different accessories produced by Bendix is a two speed axle shift control. This unit is also assembled with automatic screw drivers—two thread-cutting screws holding the top mechanism and two similar screws attaching the bottom.

Better mating of threads

The use of these and other thread-cutting screws can reduce manufacturing costs by the elimination of tapping. Since thread-cutting screws create their own mating threads, the necessity of clearance between screw and tapped hole is avoided. The screw therefore fits snugly in its tapped hole and possible loosening through vibration is greatly reduced.

Another point in favor of thread-cutting screws is their strength. Machine screws, being made of soft steel, have only one-half the tension or torsional strength of thread-cutting screws. Also, the threads on soft screws can more easily be stripped. Because of their greatly increased strength, greater torque can be applied to the thread-cutting screws when setting them home. As a result, the fastening is considerably more secure.

AUTOMATIC screw drivers on short vacuum piston line quickly fasten 10 thread cutting screws.

a solution temperature of 2000°F. Ductility de-

New Stainless Steels Qualify for High-Temperature Service

◆ **Tests on new stainless steels show that they have the properties needed for high-temperature uses . . . One of these—Crucible HNM—exhibits a wide variety of mechanical properties depending on the heat treatment applied.**

◆ **The best combination of strength and ductility is obtained with a solution temperature of 2000°F . . . The cooling rate is also a factor . . . In this case, oil quenching gave the best properties.**

By E. A. LORIA, Staff Metallurgist,
Crucible Steel Co. of America, Pittsburgh

Part I

◆ SELECTION of materials for service temperatures above 800°F has generally been a choice between cobalt- or nickel-base alloys and the austenitic stainless grades. For elevated temperature service, it has become highly important to use alloys with the lowest possible strategic index that will meet service requirements. Short time yield strength seems to be the limiting property up to 950°F whereas at higher temperatures the 1000-hour rupture strength becomes the design criterion.

In selecting suitable steels, a number of property factors may come into play. All of these factors may be significant and it would be difficult to list them in order of importance. The mechanical properties at room and elevated temperature levels would be involved in any evaluation study. Since the effects of stress and high temperature on the structural stability of metals are functions of the length of time that stress and heat are applied, a comparison of the property is made before and after some interval of time. The most commonly determined properties are the short-time tensile test and the long-time rupture test.

Has good strength-density ratio

Recently, some of the metallurgical properties of HNM, a new austenitic stainless grade, developed by Crucible Steel Co. of America, were presented.[1] On a strength-density ratio at temperature, it holds a favorable position with respect to other popular alloys. More recently, the stress rupture properties of HNM have been determined to evaluate its suitability for high temperature service. HNM has a chemical anal-

This is the first of two articles dealing with the suitability of new stainless steels for high-temperature service. The second article, which will discuss a nickel-free alloy, will appear in the Oct. 13 issue of The Iron Age.

of HNM are set forth in Table III. HNM has a different solution and aging temperatures are

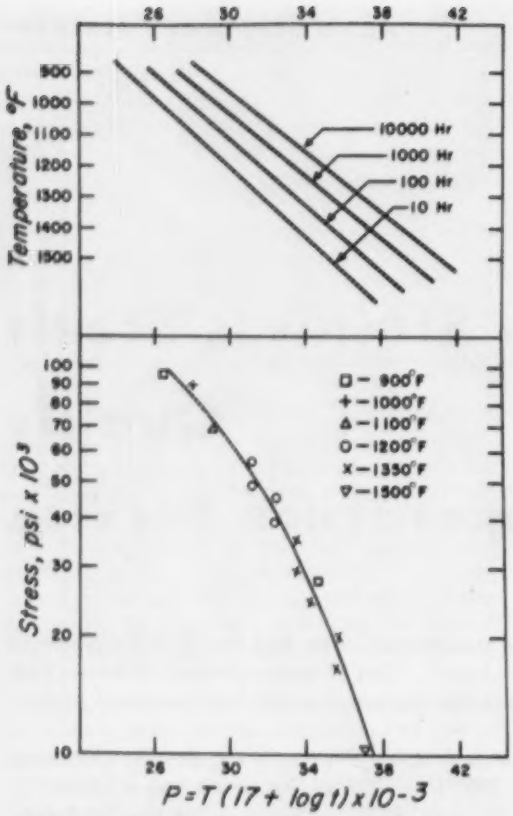


FIG. 1—Master rupture curve for HNM depicts values over the range of 900° to 1500°F.

ysis of 0.31 C, 3.43 Mn, 0.50 Si, 9.50 Ni, 19.0 Cr and 0.30 P.

To obtain the best combination of strength and ductility in HNM, the effect of solution temperature was investigated by means of stress rupture tests at 1350°F on bar specimens which were solution treated in 50° intervals between 1950° and 2100°F, oil quenched and then aged at 1400°F for 16 hours. The best combination of strength and ductility was obtained with a solution temperature of 2000°F. Ductility decreased and strength increased with increasing solution treatment up to 2100°F.

The effect of cooling rate from the 2000°F solution temperature was then established. Table I shows that an oil quench gave the best properties. Consequently, this type of cooling was used for the remainder of the study. The variation in hardness was 30 to 33 Rc for different cooling media after the 2000°F solution treatment. The hardness could be raised from 32 to 39 Rc by raising the solution temperatures to 2100°F.

Rupture strengths high

A master rupture curve for HNM over the range of 900° to 1500°F is depicted in Fig. 1. Values for the 100-hour and 1000-hour rupture life of HNM, as obtained for the master curve, are given in Table II. HNM has rupture strengths which meet the current high requirements of aircraft designers for low alloy sheet material. Its rupture strength, compared to that of the standard stainless 316 grade, is far superior. HNM also has better strength than martensitic 17-7 PH (condition TH). A stress of 91,000 psi is required for HNM for rupture in 1000 hours at 900°F as compared to 57,000 psi for 17-7 PH.

Actually, the entire range of stress rupture values for HNM in Table I is equivalent to the average values[2] obtained for 16-25-6, a more highly alloyed material. In a comparison with 19-9 DL or 19-9 DX, the stress rupture values for HNM are higher for the temperature range of 900° to 1200°F and equivalent to those obtained for these austenitic grades from 1200° to 1400°F.

Although the alloy contains more than 18 pct Cr, the relatively high carbon content of HNM, and the aging treatment employed for hardening, does precipitate fine, randomly distributed carbides. Hence, the corrosion resistance of the steel may be impaired in certain media.

Some elevated temperature tensile properties

Table I

Effect of Cooling from 2000°F on Stress Rupture Properties of HNM at 1350°F

Mode of Cooling	Room-Temperature Hardness, Rc	Stress, psi	Rupture Life, hrs	Elongation, pct	Reduction of Area, pct
Air	30	30,000	35	5	11
		25,000	70	7	10
Oil	33	30,000	57	5	19
		25,000	123	4	6
Water	32	24,000	88	4	3
		19,000	240	5	8

All pieces were heated ½ hour at 2000°F, cooled as indicated then aged 1400°F, 16 hours, AC.

Table II

Comparison of Stress Rupture Properties of HNM

Test Temp., °F	Crucible HNM		Type 316		16-25-6 Alloy	
	100-Hour Life, psi	1000-Hour Life, psi	100-Hour Life, psi	1000-Hour Life, psi	100-Hour Life, psi	1000-Hour Life, psi
900		91,000		59,000		89,000
1000	88,000	72,000	64,500	47,000	80,000	70,000
1100	67,500	53,000	44,000	37,000	65,000	53,500
1200	49,000	35,000	32,500	25,000	48,000	36,000
1350	25,000	15,500	17,000	12,500	27,000	17,000
1500	11,000				15,000	

of HNM are set forth in Table III. HNM has a good combination of strength and ductility. In particular, the steel has a very high yield strength. In comparison, 17-7 PH tested at 1000°F has 108,500 psi tensile, 67,500 psi yield (0.2 pct) and 12 pct elongation.[3]

A different heat treatment will raise the strength and lower the ductility of HNM. For example, HNM, with a room temperature hardness of 39 Rc, will have a 95,000 psi tensile, 84,000 psi yield (0.2 pct) and 12 pct elongation when tested at 1200°F. The elevated temperature tensile strength of HNM is approximately twice that reported for 18-8 stainless steel at temperatures up to 1600°F. However, above 1350°F ductility decreases rapidly.

The room temperature properties of HNM for different solution and aging temperatures are given in Table IV. The high strength of this nonmagnetic steel is owing to the precipitation of $Cr_{23}C_6$; phosphorus is not found in any of the precipitates produced upon aging. The mechanism of hardening has been theorized to result from increased strain energy in the austenitic lattice resulting from interstitially dissolved phosphorus.

REFERENCES

1—E. A. Loria, How Stainless Steels Rate for High Temperature Aircraft Service, The Iron Age, Vol. 175, April 1955, p. 119. 2—ASTM Report, Elevated Temperature Properties on Selected Super Strength Alloys, STP No. 160, Aug. 1954. 3—G. T. Bedford, Precipitation Hardening Stainless Show Advantages Over Standard Grades, Materials & Methods, Vol. 38, May 1952.

Table IV

Room Temperature Mechanical Properties of HNM

Aging Temp., °F	Tensile Strength, psi	0.2 pct Yield Strength, psi	Elongation, pct	Reduction of Area, pct	Hardness, Rc	Charpy Impact, ft-lb
Solution Treated 2000° F, ½ Hr, Oil Quenched						
1400	154,000	106,000	22.5	36.5	31	18
1300	163,000	117,000	21.5	34.5	35	13
1200	153,350	110,500	26.5	39.5	34	18
Solution Treated 2050° F, ½ Hr, Oil Quenched						
1400	162,000	117,000	20.0	33.5	35	12
1350	168,000	124,000	19.5	31.5	38	11
1300	172,000	135,000	17.5	28.5	38	8
1200	168,000	134,000	18.5	29.0	38	6
Solution Treated 2100° F, ½ Hr, Oil Quenched						
1400	169,000	124,000	18.0	28.0	40	9
1300	180,000	141,000	16.0	25.0	36	7
1200	165,850	129,850	18.5	30.5	40	8

Aging time 16 hr in each case.

Table III

Tensile Properties of HNM at Elevated Temperature

Test Temp., °F	Tensile Strength, psi	0.2 pct Yield Strength, psi	Elong., pct	Reduction of Area, pct
1000	102,000	74,000	17	43
1100	90,000	72,000	21	47
1200	81,000	69,000	23	47
1300	61,000	54,000	24	37

Condition: 2000°F, ½ hour, oil quenched; 1400°F, 16 hours, air cool. Room temperature to 33 Rc.

Features close control—

New Continuous Galvanizing Line Produces Tight Coatings

◆ Carefully-developed processes and control features mark Wheeling Steel Corp.'s newest continuous strip galvanizing line . . . All built-in elements are designed for large tonnage output of tightly bonded zinc coatings.

◆ Low frequency induction melting keeps the main zinc bath circulating . . . Aluminum additions inhibit formation of brittle iron-zinc layers . . . Line sections for pre-fluxing and cleaning the steel strip work automatically.

By N. E. COOK,
General Superintendent,
Galvanizing Operations,
Wheeling Steel Corp.,
Wheeling, W. Va.

TWO deep looping pits allow time for making line adjustments without halting operations.

◆ A NEW CONTINUOUS strip galvanizing line recently installed at Wheeling Steel Corp., embodies many design and control features to aid large tonnage production of tightly bonded, non-peeling zinc coatings. Highlights include low frequency induction melting of the zinc-aluminum coating; pre-fluxing of the steel strip in a liquid bath; by-pass systems for selective use of strip-cleaning equipment; and an underground fume disposal setup.

Control of the process on the new line is both easy and positive to the degree that it guarantees tight zinc coatings. And it is possible to apply these tight galvanized surfaces to any steel base of galvanizing grade, since the zinc coating will withstand at least as much punishment as the steel itself.

Produce tight coatings

Wheeling's method is generally considered an "annealing-out-of-line" process as distinguished from other continuous coating systems. Steel coils for the line are batch-annealed at the mill in deoxidizing atmospheres, and are temper-passed if necessary. This means that any type of physical, chemical, or surface specification can be produced.

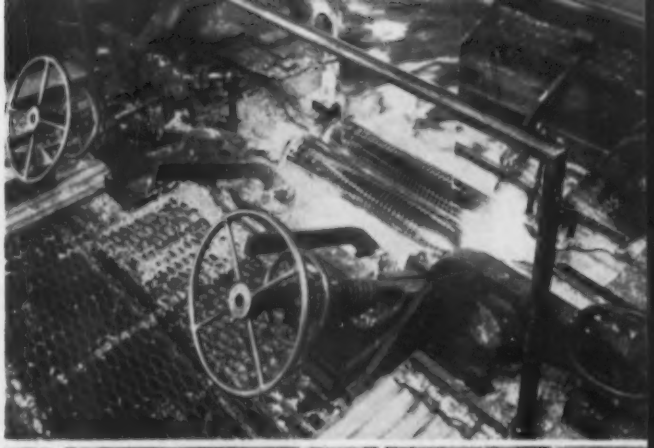
Since the coating process itself does not materially change any of the original properties of the steel base, a wide variety of finished materials can be furnished to meet variable consumer demands. It is also possible to provide tight zinc coatings on completely unannealed base material.

Essentially, the tight-coating process eliminates the brittle iron-zinc alloy layers that tend to peel from the steel base when the material is bent or formed. Small percentages of aluminum in the zinc inhibit the formation of these brittle layers, but it is difficult to mix these metals because of their different melting temperatures and specific gravities.

The aluminum tends to separate and float to the surface of the coating bath, and unless it is completely and constantly mixed with the zinc in the correct proportions, it is not fully effective in inhibiting the formation of iron-zinc layers.

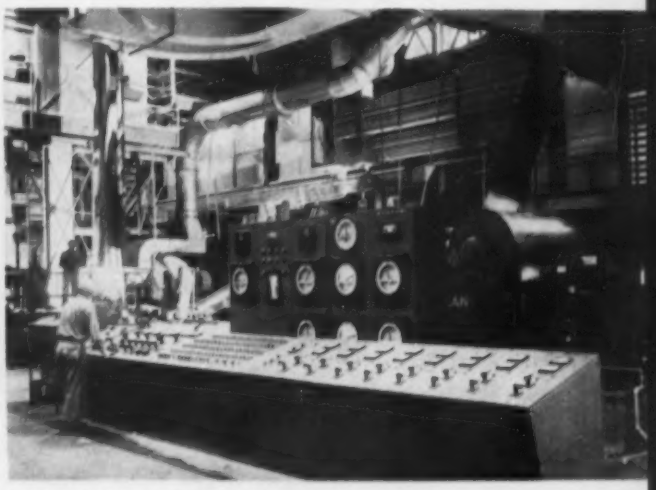
This is especially true at the point where the strip enters the coating bath. If the aluminum is not completely mixed at that point, the unwanted brittle layers will begin to form, and no amount of aluminum in the remainder of the bath will be effective in eliminating or minimizing them.

To achieve a thorough, constant mixing of the coating bath, which is contained in a ceramic-lined pot, Wheeling Steel uses low frequency induction heating. The induction heating units are mounted on the outside of the pot shell, and are directly connected to the metal bath through channels which open directly into it.



Above:
FRESHLY coated strip emerges from galvanizing pot. Rolls help control coating thickness.

Top:
ZINC SLABS move to the premelt pot at a rate that maintains a constant level in main bath.



MAIN PANEL for controlling automatic features of the new continuous galvanizing line.

EXIT ENDS of old line (left) and new one (right) point up overall length difference.

With this type of heating the colder metal in the bath is always being drawn downward to the bottom channel where the heating coils are located. Heated metal is then forced out again into the main body of the coating bath. This thermal circulation of the metal, plus proper positioning of the induction units, keeps all of the metal in the main galvanizing pot continuously mixed.

Electrical input to the induction units is automatically regulated by special controls to insure the correct bath temperature for the type and gage of strip being coated. With this closely regulated thermal circulation, calculated additions of aluminum can easily be made to maintain positive control of the bath.

An important part of the firm's process for producing tight zinc coatings on the new line is the built-in section for continuously prefluxing and preheating the strip steel. This was a difficult technique to perfect for several reasons.

Dry flux continuously

First, the material had to be fluxed through a liquid bath. Secondly, it was essential that the flux layer be absolutely continuous in nature, and that it be of the same thickness when applied to all gages, and at all speeds of line operation. Thirdly, the type of flux had to be such that it could be dried on the continuously moving hot strip before it entered the bath.

Reason for this latter requirement is that the reaction of the flux with the bath metal (particularly with the aluminum) takes place at approximately 360°F. If the prefluxed and preheated strip enters the bath at or above that temperature, the reaction occurs immediately at the bath surface. By-products of the reaction are then left at the surface, thus eliminating the possibility of carrying the flux through to the exit coating rolls.

A DuPont flux was developed which is applied in a liquid solution at approximately 180°F. The new galvanizing line efficiently applies this flux in controlled film thickness, on all gages, and at all line speeds, and then preheats the fluxed strip to as much as 500°F, before it enters the coating bath.

The new continuous line is a "tension" line. Like most continuous galvanizing installations, it is divided into three cleaning sections which can be operated independently, and which have storage pits between them. The sections consist of two acid dip tanks which use a weak solution at room temperature, plus one hot alkali tank.

Between the various tanks are additional water spray and dip tanks, and horizontal-pass, Tampico brush scrubbers. The cleaning equipment is so arranged that all sink rolls in the tanks can be hydraulically lifted to elevate the strip pass line above the solutions. Thus it is possible to use any or all of the cleaning equipment as necessary.

At the exit end of the galvanizing line is a chemical treatment section, where solution-dip tanks, water spray tanks, and hot air driers are used to prevent "wet storage stain." All tanks and equipment in this section are completely instrumented for ease of operation and control.

Separate fumes

Fumes are eliminated from the galvanizing area by an underground disposal system. Tanks are ventilated to underground piping where the fumes are mixed with water and waste liquids. The fumes are separated and taken off outside the building through a stack, and the liquids are run off.

General contractor for this $4 million addition to Wheeling's galvanizing facilities was the Wean Engineering Co., Warren, Ohio. The new line is designed primarily for material from 10 to 24 gage, but it will accommodate 30 gage steel strip. It handles strip widths from 24 through 48 in. at speeds of 50 to 300 fpm.

Black coils weighing up to 40,000 lb and up to 72 in. OD go into the line which also has two decoilers complete with auxiliary equipment. The finished galvanized material may be rewound on the line's two coilers at the exit end, or else it can be sheared to specified lengths.

Electric power required for the low frequency induction heating setup is approximately 2300 kw. There are six induction units on the coating pot alone to insure that proper temperatures are maintained for the approximately 175 tons of molten zinc in the bath.

Overall length of the continuous galvanizing setup is about 700 ft. Looping pits between line sections are 75 ft deep.

Production capacity is expected to be 40 to 50 tons of galvanized strip per hour when the line is working on medium to heavy gage material. For the average gages that will be processed, monthly production on this line alone is expected to be in excess of 20,000 tons.

Performance of this end-welded shock absorber anchor pin led company to assign two other key functions to welded studs.

No failures—

Stud Welding Improves Part Design

◆ End-welded studs, after five years of proved dependability in meeting extreme shock and sheer conditions in American Motors Corp. cars, have been assigned additional roles in 1956 models.

In early 1950, the company tested the use of ¾-in. diam Nelson shoulder studs as anchor pins for rear-wheel shock absorbers in Rambler automobiles, at the axle end. The studs are a horizontal extension of the shock absorber plate which holds the leaf spring to the axle by means of two U-bolts placed over the axle. The application subjects the pins to a severe shearing action every time a rear wheel hits a bump.

Purpose of the application, first of its kind in the automotive field, was to improve design and speed assembly of the autos. It proved so successful, with 100 pct dependability of the studs, that the company redesigned the running gear assembly of their other cars to incorporate two other key applications for the studs. These appeared in last year's larger model cars, are now being extended to the 1956 Rambler.

Procedure now is to end-weld two standard ¾-in. shoulder studs to the rear axle tube. One stud becomes a truss rod anchor. The other holds a bracket which secures the sway bar. On the opposite end of the axle, only the truss rod stud is used, while the sway bar is there attached to the car body.

Before the redesign using studs, the truss rod was fastened with a forging that was hand welded to the axle tube. The forging then had to be faced off, drilled and tapped. Approximately 4-in. of hand weld was required. A bolt was then passed through the hole in the truss rod and threaded into the forging.

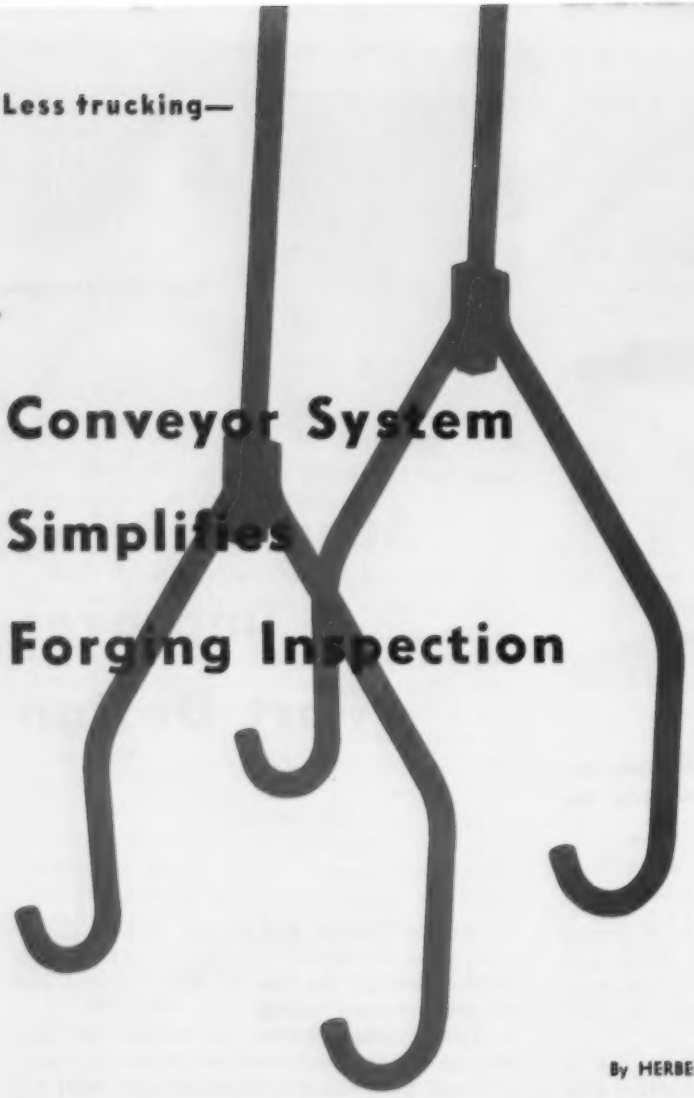
With the stud welding, the forging, the machining and the hand-welding are all eliminated.

Single gun Nelson production units with accurate locating fixtures are used to end weld the studs for all three applications. Once the cycle is started, by push button or foot switch, the gun moves automatically into position, welds the stud and retracts. A chute attached to the work table carries away broken ferrules.

Stud-welding these supports to rear axle tubes improved design and reduced assembly time. Stud near flange serves as truss rod anchor; other stud holds bracket securing the sway bar.

Less trucking—

Conveyor System Simplifies Forging Inspection



◆ Trucking forgings from pickling to inspection operations at this plant required excessive handling, was slow and expensive.

◆ Conveyor systems now save trucking and allow easy rotation of the forgings right on conveyor hooks . . . Method has doubled the inspection rates.

By HERBERT CHASE, Consultant, Forest Hills, N. Y.

◆ A SIMPLE CONVEYOR system has reduced trucking and lifting and speeded inspection of 80 lb crankshaft forgings at GMC's Buick Motor Div. Plant, Flint, Mich.

All Buick crankshafts are hammer-forged of SAE 1145 steel. Following forging, crankshafts move through continuous heat treating furnaces and must then be cleaned of scale prior to inspection. Barrel-type shot-blasting was tried at one time for the cleaning operation, but proved unsatisfactory, so pickling was continued.

Under the former system shafts were loaded on skids following pickling and then were carried to an inspection department by fork trucks. There each shaft was transferred by hoist to a bench inspection fixture designed to permit rotation during the inspection operation. After inspection the shaft was returned to a skid. There was a row of five inspection benches altogether, and handling to and from these was slow and expensive.

The new setup largely overcomes these disadvantages. Now forgings coming from the heat-treating furnaces are loaded directly onto monorail conveyor racks. These move them directly to the inspection department, eliminating the trucking formerly necessary. In the inspection department, a trolley air hoist transfers each forging to a double-pronged hook hanging from a conveyor. The conveyor carries the suspended shafts through a Pangborn Roto-Blast booth. Following blasting, the forging continues past a single inspection bench.

In the grit blasting booth, six wheels sling 0.054-in. cut wire steel grit against all surface of each shaft. The treatment is highly effective in removing all scale. It also reveals overlaps and other defects that the inspectors must see. Grit recovered from the blast is cleaned, mixed with new grit and reused. Grit that would impinge on both walls if they were not protected strikes either rubber covering or high-alloy plates having long life.

No unloading of the forgings is required at the inspection bench, where only two inspectors are now needed in place of the former five. The

HEAT-TREATED FORGINGS enter inspection on conveyor at left, are transferred by air hoist to cleaning and inspection conveyor at right.

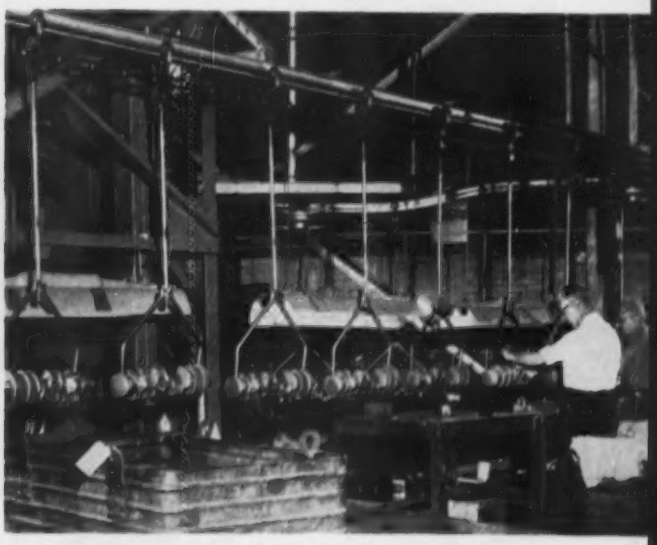
supporting hooks permit easy turning of the shafts so that all surfaces can be conveniently viewed. Shafts passing inspection are suitably marked and then are unloaded into skid boxes for transfer to the machine shop. Rejects, which are few, are given identifying tickets and unloaded into another skid. These then go to the salvage department. If the defects cannot be remedied, the forgings are scrapped.

The new system has proved much more efficient. With the prior setup, five inspectors during each of two shifts were averaging 38 shafts per hour each. Now two inspectors average 85 shafts per hour each—better than twice the former rate. And as inspectors need do no shifting of shafts to the bench inspection fixture, but can rotate them instead on the hooks, there is considerably less manual labor.

Two men per shift, using trolley air hoists, handle all loading and unloading of the conveyor on which blasting and inspection are done. They can readily handle a larger volume of shafts than formerly passed through the inspection department.

Men no longer needed on crankshaft forging inspection have been transferred to other work.

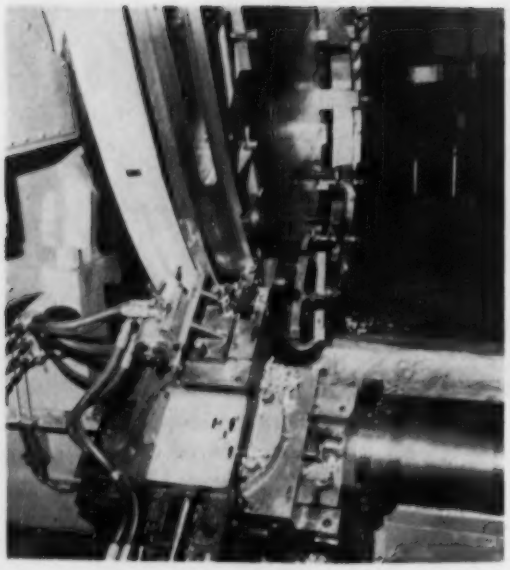
DOUBLE HOOKS on the cleaning-and-inspection conveyor carry forgings through the Roto-Blast booth for removal of scale.



TWO INSPECTORS at this single bench easily examine 170 forgings per hour, rotating them right on conveyor hooks for easier handling.

High accuracy—

Tracer-Controlled Lathe Machines Difficult Contours



DETAILS of tracer and cutter slide assembly. Tracer and cutting tool are rigidly joined.

◆ ACCURATE DUPLICATION of twisted contours is a major machining problem arising from the recent trend in aircraft design to develop integral structural components instead of built up assemblies.

One such difficult problem is the machining of fuselage bulkheads for Convair F-102 aircraft. These parts are a series of huge half-rings, assembled into complete rings after machining. Several steps on the outside part contour differ in height to accommodate the various thicknesses of outer skins which are attached in subsequent assembly. To maintain a flush surface, these steps must be held within 0.010 in. from the outside contour. The outside contour of the bulkhead must also be held within 0.010 in. to a contour control gage. To further complicate the problem, the outside contour flange angle varies about the periphery of the bulkhead from minus 1° to plus 5°.

Solve chatter problem

By adapting a True-Trace 180° hydraulic tracing valve and necessary sliding elements to a large lathe, the H & B Machine Co., Culver City, Calif., has obtained a contouring machine which duplicates within plus or minus 0.005 in. from a 3-dimensional model or pattern.

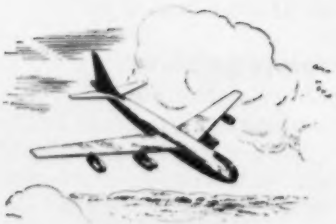
The spindle head stock section from a gun lathe is used as the rotating drive with the model and piece part attached to the face plate. The tracing valve and tool holder are mounted upon the tracing slide. This assembly in turn is mounted on a cross feed slide.

As the lathe spindle rotates, the cross feed cylinder actuates the cross slide. The cross feed rate is governed by an adjustable flow control valve and can be set as low as 0.02 in. per min. With the cross feed slide in motion, the valve stylus is fed across the model in a direction parallel to the axis of the lathe spindle. As the pattern contour changes, the valve stylus deflects to cause movement of the tracing cylinder and slide in a radial (in and out) direction. A single point cutting tool located on the same slide thus automatically generates the contour being following by the tracing valve against the model.

One of the initial problems encountered in machining this part was severe chatter due to the relative high speed of the tracing slide and the resultant high inertia forces. These forces caused a slight over-travel of the valve which had been precisely flow-balanced for close tolerance machining. To overcome this the rigidity of the system was greatly increased. The tracing slide now attains speeds of approximately 200 in. per min. while reproducing within plus or minus 0.005 in., without any pattern compensation.

The use of a single point tool simplifies tool-stylus coordination and produces a surface which requires a minimum of hand finishing. An additional advantage is that the extremely (0.06 in.) corner radii of the external steps are accurately reproduced.

This hydraulically converted duplicating lathe now produces a more accurately machined part in one half the time required by former duplicating methods.



WE'RE POURING MORE AIRCRAFT-QUALITY ALLOYS AT Newport Steel

ECONOMICAL WATERAIL-TRUCK DELIVERY

Newport Steel is ideally situated on the Mississippi-Ohio River system and the great Cincinnati rail-truck hub. New barge facilities, 7 major railroads and 143 motor carriers enable Newport to give economical, dependable delivery to the entire area of the Middle West and South.

Aircraft-quality alloys are extremely important these days, and Newport constantly is increasing production of this vitally needed material. Our seventy years' fine steel-making experience, our quality control, and specialized equipment for rolling sheets and plates, ensure steel to the exact specification of each customer. In addition to these aircraft-quality alloys we produce the steel products listed below. Look over the list, then let us discuss your needs and our qualifications to deliver what you want when you want it.

PRODUCTS OF NEWPORT STEEL

- Cold-Rolled Sheets
- Hot-Rolled Steel in Coil
- Hot-Rolled Pickled Steel in Coil
- Hot-Rolled Sheets
- Hot-Rolled Pickled Sheets
- Galvanized Sheets
- Galvannealed Sheets
- Colorbond Sheets
- Electrical Sheets
- Alloy Sheets and Plates
- Electric Weld Line Pipe
- Roofing and Siding
- Eave Trough and Conductor Pipe
- Culverts

Newport Steel

CORPORATION

NEWPORT, KENTUCKY

YOUR CONFIDENCE IS JUSTIFIED WHERE THIS FLAG FLIES

A SUBSIDIARY OF MERRITT-CHAPMAN & SCOTT CORPORATION

New Technical Literature:

Catalogues and Bulletins

Atomic chart

A new edition of its simplified periodic chart of the elements has just been published for office and laboratory use. It is printed on Texoprint, a combination of fiber and plastic, with the printability of fine coated paper and the durability of cloth. *Fisher Scientific Co.*

For free copy circle No. 1 on postcard, p. 81.

Semiconductor lenses

Germanium and lenses may now be obtained for use in infrared optics. The company will design and fabricate lenses and optical elements to customers' performance specifications. Technical circular on request. *Baird Associates, Inc.*

For free copy circle No. 2 on postcard, p. 81.

Electric tools

A new 25-page 1956 catalog describes 52 portable electric tools and kits with over 400 accessories for builders, carpenters, plumbers and electricians. Includes pictures of tools and their uses with complete specifications and prices. *Porter-Cable Machine Co.*

For free copy circle No. 3 on postcard, p. 81.

Grabs

A circular on Mansaver Grabs for the steel industry is promptly available to all who have a materials-handling problem. *Mansaver Industries, Inc.*

For free copy circle No. 4 on postcard, p. 81.

"And remember this Pete? The first die you ever made for us with Columbia OILDIE!"

COLUMBIA TOOL STEEL COMPANY • CHICAGO HEIGHTS, ILL.

Producers of fine tool steels — All types immediately available through Sales Offices, Warehouses and Representatives in Principal Cities.

TOOL COLUMBIA STEELS

FOR YOUR COPY

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, page 81.

Electric furnace

A new catalog of the company's line of electric heat treating furnaces and ovens is available. The catalog gives a complete description, with dimensions, specifications, temperatures and control information on Cooley general purpose electric furnaces, high-speed electric furnaces, recirculating furnaces, electric ovens and industrial box furnaces. *Cooley Electric Mfg. Corp.*

For free copy circle No. 5 on postcard, p. 81.

Portable remote control

"Arctrol," portable remote control for arc welding machines is described in a booklet. The booklet offers information on simplicity of operation, details of construction, installation, and advantages of the Arctrol, a portable remote control for adjusting amperage on all makes of arc-welders. Application information is listed for the various makes of welders. *Worthington Corp.*

For free copy circle No. 6 on postcard, p. 81.

Tables and data

Publication has been announced of a new 112-page booklet entitled "Selected Scientific and Engineering Tables and Data." It is composed of many kinds and types of technical information reflecting the many fields of activity of this diverse testing organization. *United States Testing Co.*

For free copy circle No. 7 on postcard, p. 81.

FREE TECHNICAL LITERATURE

Welding system

"A new welding system" is the title of a technical manual designed as a practical guide to the use of Murex Croloy Chrome-Moly electrodes for the welding of piping and equipment subject to high temperature, high pressure service. The 32-page manual presents the first comprehensive information on the new system for welding chromium-molybdenum steels in power piping, high pressure boilers, petroleum refinery equipment and chemical processing plant equipment. *Metal & Thermit Corp.*

For free copy circle No. 8 on postcard, p. 81.

Centrifugal pumps

"Worthite centrifugal pumps for acids, alkalies, and slurries" is the title of a bulletin just released. Features of the 20-page booklet include information and an outline drawing of Worthite pumps with standard stuffing box, and seven pages of rating charts which show hydraulic coverage for both 50 and 60 cycle speeds. Charts, parts lists and cutaway views showing typical sections are included. *Worthington Corp.*

For free copy circle No. 9 on postcard, p. 81.

Flexible pipe

"ExpandZorber," a complete line of flexible pipe connections used to solve vibration and expansion control problems in industrial and process piping, is described in a catalog released by specialists in shock and vibration control. The stainless steel, welded diaphragm-type, packless expansion joint described in the catalog is widely used for absorption of vibration, expansion and contraction in steam, chemical, oil and gas lines. *T. R. Finn & Co., Inc.*

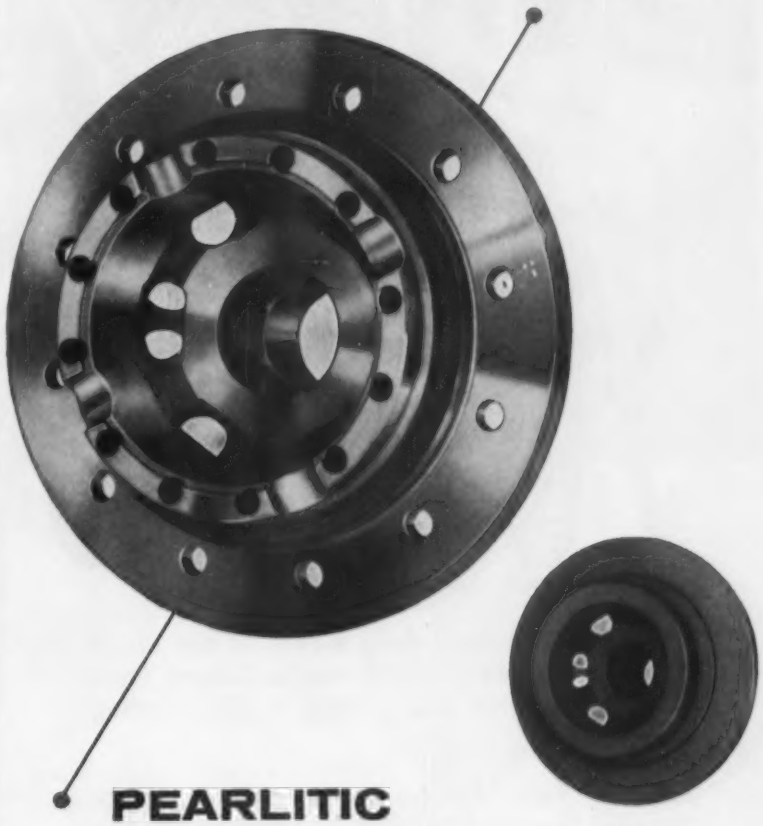
For free copy circle No. 10 on postcard, p. 81.

Gear pump

An 8-page folder on low-cost, heavy duty Sier-Bath "Hydrex" rotary gear pump for oils, burner service, hydraulic machinery, lube oil circulation, chemicals marine service and general transfer is now available from the manufacturer. *Sier-Bath Gear & Pump Co., Inc.*

For free copy circle No. 11 on postcard, p. 81.

MACHINABILITY INDEX 80-90*



PEARLITIC MALLEABLE CASTINGS

* B1112 STEEL = 100

Low machinability index of 80-90 (B1112 steel = 100) is probably reason enough to warrant serious consideration for your product.

But pearlitic malleable castings—from National—don't stop there. They have great ultimate strength . . . resist wear under heavy loads at high speeds . . . make excellent non-seizing bearings . . . can be air or liquid-quenched . . . can be smooth-finished.

Don't overlook the advantages of pearlitic malleable. For pearlitic malleable castings—from National—can often reduce manufacturing costs, weight and assembly time . . . can increase the sales potential of your product. AA-1809

NATIONAL MALLEABLE AND STEEL CASTINGS COMPANY

Cleveland 6, Ohio

The Nation's largest independent producer of malleable and pearlitic malleable

Due to the unusual deep socket in the above Adjusting Screw it could not be formed from regular annealed and processed cold heading wire.

Keystone's metallurgist recommended Keystone "Special Processed" wire. The manufacturer has now standardized on "Special Processed" wire for this and other difficult cold headed parts. His results have been improved quality, increased production and lower cost per unit.

The superior grain flow characteristics of Keystone "Special Processed" wire provide the necessary upsetting and die forming qualities to withstand the terrific metal displacement in your most difficult cold heading jobs. Your inquiry is welcomed.

Keystone Steel & Wire Company
Peoria 7, Illinois
Industrial Wire Specialists

Speed transmissions

A new bulletin on Speed-Trol Variable Speed Transmissions is now available. The brochure has sections of interest to both engineers and laymen in its discussion of the inner workings of the positive pulley design. Also featured is information on factors in drive selection and a description of the many types of automatic and remote speed control accessories available. *Sterling Electric Motors, Inc.*

For free copy circle No. 12 on postcard, p. 81.

pH recorders

A new price list and specification bulletin has just been released on Bristol's pH recorders and controllers for use with Beckman electrodes and amplifiers. Specifications are written to enable a user to select the pH indicating, recording, or automatically controlling equipment best suited to his particular needs. *The Bristol Co.*

For free copy circle No. 13 on postcard, p. 81.

Flood report

A Flood Report which gives an account of how this company's Connecticut plants at Ansonia and Derby fared when the Naugatuck River went on a rampage is now available. The 12-page bulletin contains many pictures of the flood damage and repair. *Farrel-Birmingham Co., Inc.*

For free copy circle No. 14 on postcard, p. 81.

Plant survey

An easily conducted plant survey that may uncover sources of many common production losses is the subject of a new folder being issued by this company. The folder also tells how many of the causes of production loss may be eliminated through greater machinery mobility and less maintenance or "downtime." *Barry Controls, Inc.*

For free copy circle No. 15 on postcard, p. 81.

Plastics fact file

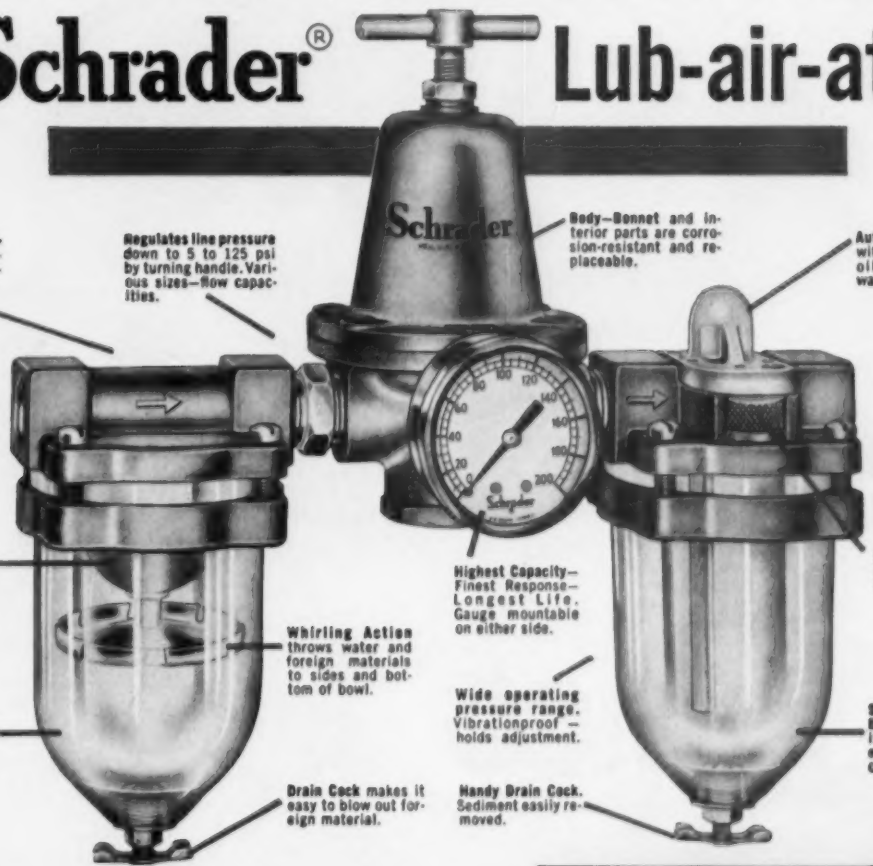
An up-to-date listing of the plastic products of a company is available. It contains the latest products, the forms they come in, and the present uses. *Monsanto Chemical Co.*

For free copy circle No. 16 on postcard, p. 81.

NEW!

FILTER...REGULATE...LUBRICATE with this

Schrader® Lub-air-ator


Schrader
Finest sintered filtering — automatic — completely rustproof—various sizes.
Regulates line pressure down to 5 to 125 psi by turning handle. Various sizes—flow capacities.
Body—Bonnet and interior parts are corrosion-resistant and replaceable.
Automatic Lubrication with sight feed. Adjust oil flow while you watch.
Sintered Bronze Filter Minimum pressure drop. Removable filter easily cleaned without disturbing piping.
Whirling Action throws water and foreign materials to sides and bottom of bowl.
Highest Capacity—Finest Response—Longest Life. Gauge mountable on either side.
Sliding-Seal covered port permits quick, easy refill.
Sturdy Transparent Bowl permits constant visual policing.
Wide operating pressure range. Vibrationproof — holds adjustment.
Sturdy Transparent Bowl—½ pint capacity. Oil level always evident. Refill without shutting off air.
Drain Cock makes it easy to blow out foreign material.
Handy Drain Cock. Sediment easily removed.

Easily maintained. No moving parts—can be serviced without disturbing pipe connections.

Now! An all-in-one installation! The Schrader LUB-AIR-ATOR. This new, quality unit is designed to do these three important jobs: *filter* clean the air as it moves through system—*regulate* air to proper pressure requirements—*lubricate* moving parts in the correct amount to minimize wear and friction. End result: your valuable air tools give longer trouble-free service.

Use a Schrader LUB-AIR-ATOR wherever you need dependable, safe air service. And... if you design products with air equipment and controls—"build in" the Schrader LUB-AIR-ATOR. Its quality complements *your* equipment. For a fully illustrated specification sheet write us! Act now! Address A. SCHRADER'S SON, Division of Scovill Manufacturing Company, Incorporated, 442 Vanderbilt Avenue, Brooklyn, New York.

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Stamco #6 standard 12 ga. x 144"
#8 corrugator 8 ga. x 168"
STAMCO
Stamco #6A high speed corrugator
Stamco 8 ga. Culvert Curving roll
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STAMCO
Stamco high duty Culvert Punch and Riveter equipped with air operated friction clutch
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• LAY YOUR CORRUGATING PROBLEMS AT STAMCO'S DOOR •

For Roll Corrugating and Culvert forming . . . see

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FREE TECHNICAL LITERATURE

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

This section starts on p. 76

Materials handling

"Methods and ideas" illustrates 48 manhour and space-saving handling operations, and shows various types of Barrett material handling equipment at work, with brief descriptions of the pictured applications, some of which may be profitably used in the reader's plant. This bulletin demonstrates how properly selected material handling equipment gets more work done and reduces costs by making handling jobs easier. *Barrett-Cravens Co.*

For free copy circle No. 17 on postcard.

Photoelectric controls

"Proved answers to successful automation" is the title of a 20-page illustrated pamphlet. It contains specifications, descriptive data and operational charts of Photoswitch photoelectric controls for numerous industrial uses including high-speed counting, inspection and sorting, smoke control, high-temperature measurement and control, machinery safeguards and conveyor control. *Photoswitch Div., Electronics Corp. of America.*

For free copy circle No. 18 on postcard.

Design data

Publication of a 24-page, illustrated booklet detailing preliminary design data of the Neg'ator spring as an extension member is announced by this company. The theory, development, general properties and applications of this first constant-force spring are thoroughly discussed in the booklet. *Neg'ator Div., Hunter Spring Co.*

For free copy circle No. 19 on postcard.

Hydra springs

Using compressibility of liquids, Wales Hydra Springs develop up to 600 pct more force than conventional mechanical springs of equivalent size, as described in the company's catalog. Forces may be varied by changing the type or volume of Comproil fluid. *Wales-Strippit Corp.*

For free copy circle No. 20 on postcard.

Motor Scraper

Engineering, design, construction and mechanical features of the new TS-360 Motor Scraper that make it a big-capacity earth-moving unit are outlined in the new catalog now available. Complete specifications of the unit are included. *Allis-Chalmers Mfg. Co.*

For free copy circle No. 21 on postcard.

Conveyor facts

A new conveyor catalog is announced. It is a facts book to be used for laying out a conveyor system using the new Lamson pre-engineered "Install - It - Yourself" units. The catalog is written in everyday language with many descriptive illustrations. *Lamson Corp.*

For free copy circle No. 22 on postcard.

Magnetic pulley

A new Electro-magnet pulley and pulley separator bulletin, incorporating a new simplified pulley selection method, is available. The bulletin includes detailed specifications on the company's magnetic pulleys and pulley separators. *Stearns Magnetic, Inc.*

For free copy circle No. 23 on postcard.

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. **9/29/55**

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THE IRON AGE
Post Office Box 77
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NEW YORK 14, N. Y.

Feed units

A single page flyer is now available covering data and specifications of their new Way Type Hydraulic Feed Units which feature thrust above the ways near the tool load. Another single page flyer is also available on the newly designed automatic Cam Feed Units featuring faster cycling, narrow construction and greater flexibility. *The Hartford Special Machinery Co.*

For free copy circle No. 24 on postcard.

Industrial benches

The quality features of smooth top-steel and maple top-steel industrial benches are pointed out in a folder. Also described and illustrated is an all steel work stand, of which there are eight styles. The manufacturer makes benches for every need. *Industrial Bench & Equipment Mfg. Co., Inc.*

For free copy circle No. 25 on postcard.

Stainless steel tubing

The 11th edition of the Bishop series of stainless steel tubing and tubular fabricated parts is now being distributed. It describes their line of cold drawn mechanical, capillary and hypodermic tubing, nickel and nickel alloy tubing and tubular fabricated parts. Data is given on comparative analysis of alloy types, specifications, standard tolerances and physical properties and relative workability. *J. Bishop & Co. Platinum Works.*

For free copy circle No. 26 on postcard.

Turret punch press

A 16-page bulletin describing the R-61 heavy duty turret punch press has been released. This illustrated bulletin explains how the many features of the R-61 provide unsurpassed economies in the piercing of flat material in short run to medium production capacities. It is also available with a high speed follower gauge for high speed piercing of repetitive work and longer runs. *Wiedemann Machine Co.*

For free copy circle No. 27 on postcard.

FOR MORE LITERATURE
Many companies offer free literature and other information in their advertisements. For the names of these firms see the company listings in the index of advertisers.

Silicones

A 4-page catalog of the principal silicones sold by the company is available. Listed are the various silicones, in liquid and solid forms, in the broad categories of water repellents; oils and oil emulsions; electrical insulating resins; silicone rubber gum stock and compounds; and silicones which make excellent anti-spatter, anti-foaming materials, etc. *Linde Air Products Co.*

For free copy circle No. 28 on postcard.

pH indicator

Complete information about an AC-operated pH indicator is now available in a 4-page data sheet just published. This data sheet fully describes how the indicator is being used for pH and redox work, and other dead-stop end-point measurements in both laboratory and plant. *Leeds & Northrup Co.*

For free copy circle No. 29 on postcard.

Milling machines

A 40-page illustrated brochure on Newton continuous rotary milling machines describes these machines, explores their applications to various types of jobs and points out their economy on short run work. *Consolidated Machine Tool Co.*

For free copy circle No. 30 on postcard.

Thermocouples

Specification sheet 57 describes new two-wire thermocouples with outside diameters of ⅛ in. and 3/16 in. These are for use where sensitivity and accuracy are important and where space is limited. *Minneapolis-Honeywell Regulator Co.*

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THE IRON AGE
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NEW YORK 14, N. Y.

FIRST CLASS
PERMIT No. 36
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New York, N. Y.

Postcard valid 8 weeks only. After that use your letterhead fully describing item wanted. **9/29/55**

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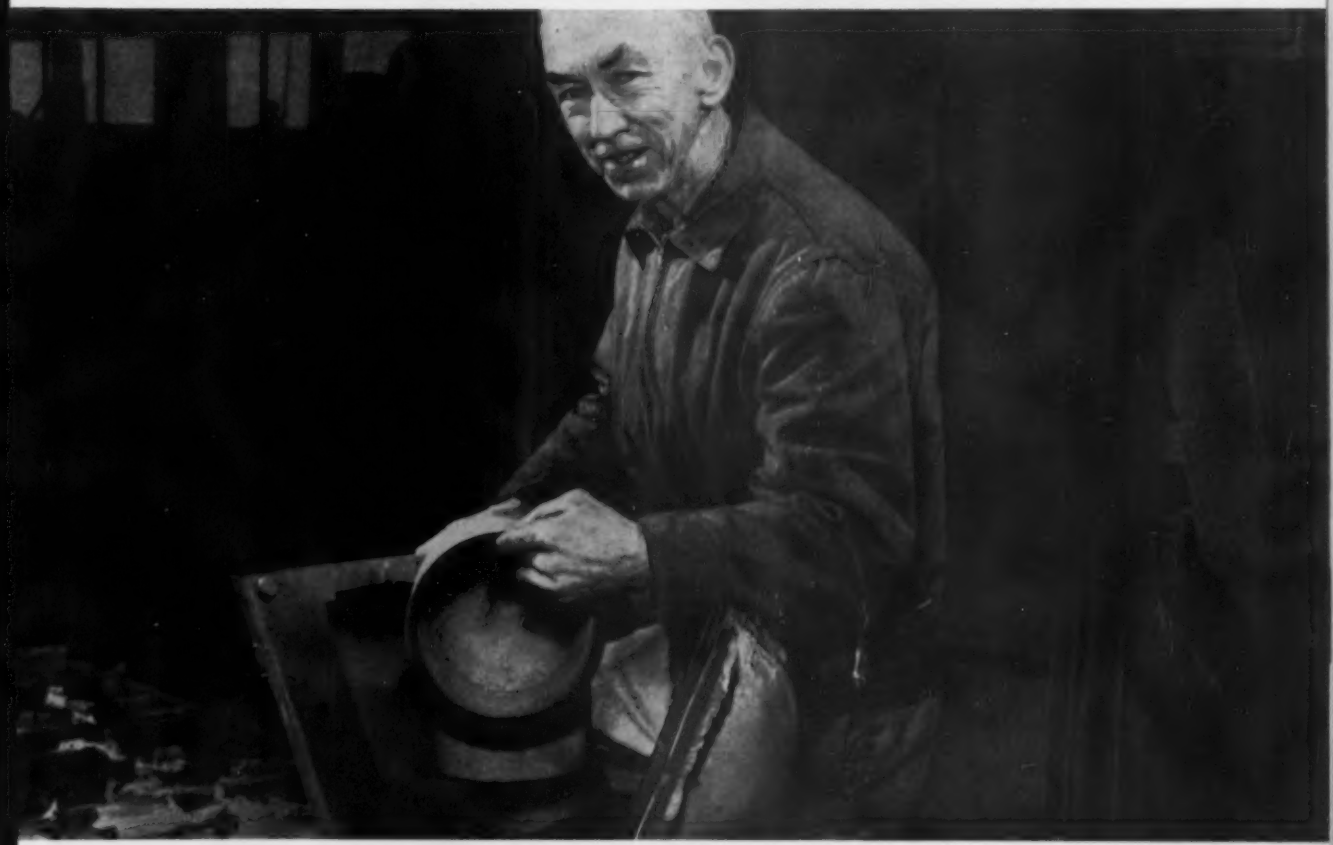
MONSANTO PROFIT PICTURES

You get stronger shell molds... higher density... with **Resinox 736**



Traditional finishing costs are being converted to profits with Resinox 736 at Murphy Shell Mold and Casting Co., Morral, Ohio.

MONSANTO'S PHENOLIC RESIN PRODUCES CASTINGS WITH SMOOTHER, FINER FINISH

Strong, dense molds are the secret of quality castings. It means you can concentrate more sand in each square inch, which results in a smooth, almost flawless surface in the finished piece.

Resinox 736 will give you this advantage. It has been specifically developed for precision casting work. This means elimination of blisters, scabs and sand crust which have to be machined or ground away when other methods or materials are used.

At the Murphy Shell Mold and Casting Co., where Resinox 736 is used exclusively as a shell binder, this advantage has amounted to "a 20% gain in production and an 80% reduction in cleaning costs."

If excessive machining and finishing requirements are hurting your profit picture, try shell molds bonded with Resinox 736 phenolic resin.

For a complete line of shell molding, core binding and sand conditioning resins that are research-developed and shop-tested to meet your foundry needs, write first to Monsanto Chemical Company, Plastics Division, Dept. IA-9, Springfield 2, Mass.

For stronger shell molds, specify

RESINOX®

MONSANTO

"Steel scientists are finding increasing evidence that nitrogen . . . is a valuable alloying element in developing new steels for jets, gas turbines, and atomic energy applications."

NEW!

A Better Way of Introducing Nitrogen Into Steel

NITRELMANG®

Now available! A new product by the pioneer producer of electrolytic manganese. NITRELMANG® . . . a stable nitrided ELECTROMANGANESE® produced in two grades, containing 5¾ or 4½% of nitrogen.

Excellent results are reported by several companies who are using this new product for introducing nitrogen into alloy steels.

Now available for prompt delivery in commercial quantities. For further information and prices write Dept. N-2

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Electro MANGANESE CORPORATION

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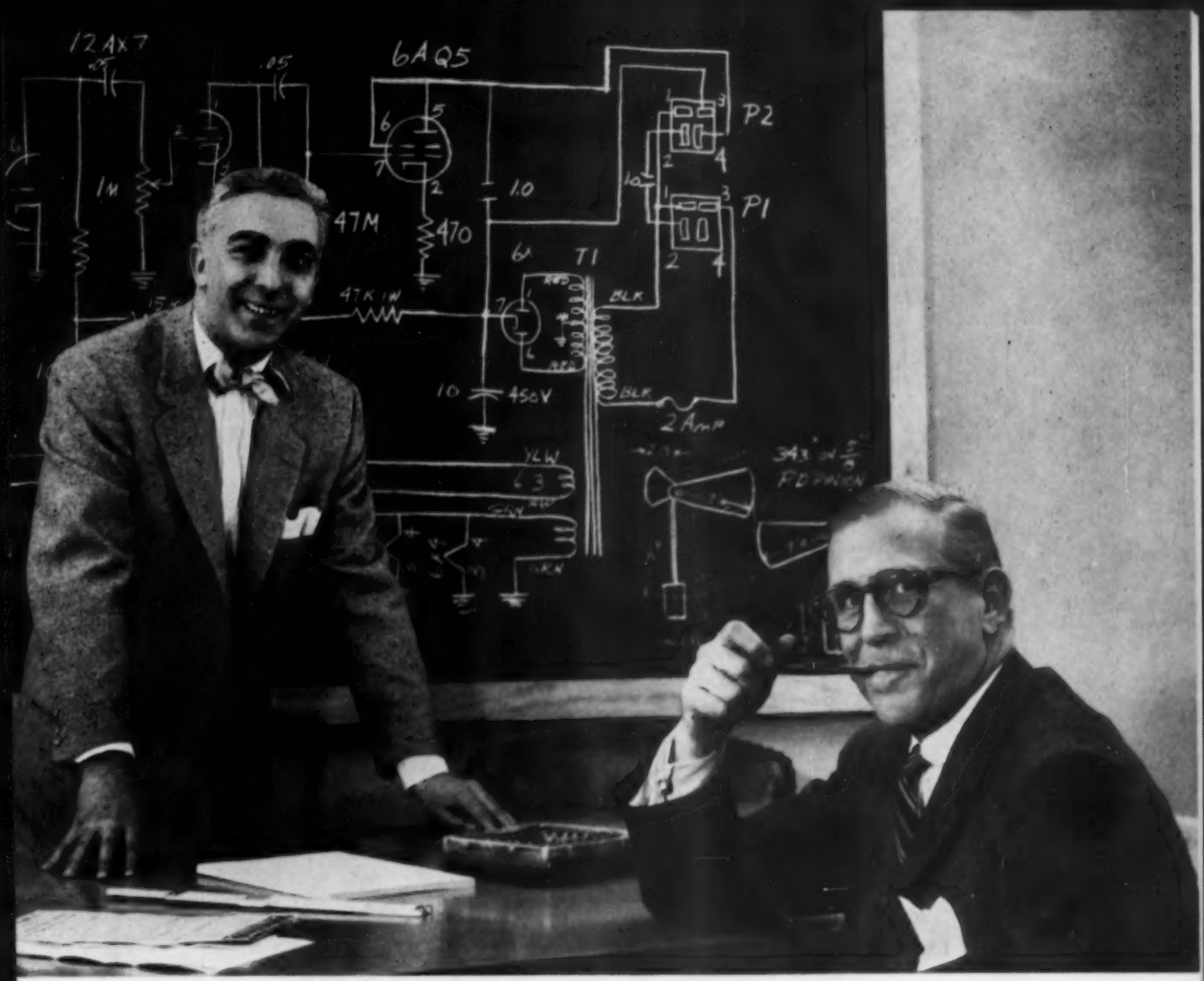


They wanted to change pounds to volts

After a hundred and twenty-five years of scale engineering it was easy!

Fairbanks-Morse Scale Engineers sought and found the practical way to adapt modern electronic principles to one of man's oldest commercial activities—the accurate weighing of items of trade.

The result is the new Fairbanks-Morse Electronic Scale that brings weighing information right to your desk from any spot that is too remote, too hot or too dangerous.

Only from Fairbanks-Morse can you get such originality and soundness of *new* design that assures outstanding performance. When next you need a scale . . . or a pump . . . an electric motor . . . or a diesel engine, look for the famous F-M Seal. For 125 years it has stood for the finest in practical engineering. Fairbanks, Morse & Co., Chicago 5, Illinois.

The Secret is this desk-sized electronic instrument that is direct reading; direct indicating—no manual switching or mental additions. Memory circuit prevents printing unless true balance exists.

The Result is that indications can be brought from remote locations to a central spot and integrated into other automatic electronic operations for faster, more complete utilization of weighing information.

FAIRBANKS-MORSE

a name worth remembering when you want the best

SCALES • PUMPS • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS

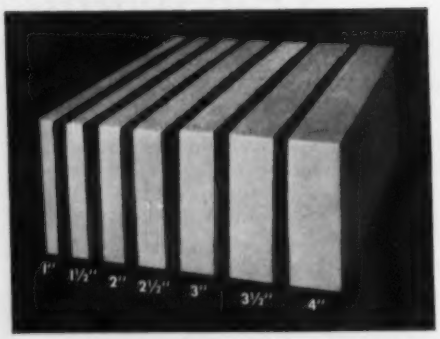
Specify J-M Superex, industry's favorite block insulation

Made from diatomaceous silica and asbestos for all temperatures to 1900F

YOU'LL ENJOY *greater insulation savings* with Superex®. Its unique combination of low conductivity and outstanding resistance to high temperatures provides greater operating efficiency and longer maintenance-free service. That's why Superex is the leading block insulation for furnace work.

Light and easy to work. Superex withstands temperatures to 1900F indefinitely with negligible loss of efficiency and is so strong that it compresses only ⅛ inch under 6 tons' pressure per square foot. Its light weight, excellent working properties and availability in large blocks mean quick, easy, low-cost installation.

For high temperature equipment. Since its introduction in 1927, Superex has received enthusiastic acceptance. Today it economically insulates 90% of the country's hot blast stoves. Other high temperature equipment where Superex has proved its superior performance include most types of industrial and metallurgical furnaces and ovens, stationary and marine boilers, regenerators, kilns, roasters, high-temperature mains, flues and stacks.



Saves waste—Superex comes in 7 standard thicknesses from 1″ to 4″. Other sizes available on order.

For further information on Superex, write to Johns-Manville, Box 60, New York 16, N. Y. In Canada, Port Credit, Ont.

Johns-Manville *first-in* INSULATION

MATERIALS · ENGINEERING · APPLICATION

a hole here costs money...

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Crucible Hollow Tool Steel Bars put savings into the pockets of the metalworking industry. There's no need for costly drilling, boring, cutting-off or rough-facing operations. For the hole is already in the steel you buy. You save production time, machine capacity—avoid scrap losses.

Crucible Hollow Tool Steel Bars are now available in any of our famous tool steel grades . . . in almost any combination of O.D. and I.D. sizes. And you get *immediate* delivery of five popular grades — KETOS oil-hardening, SANDERSON water-hardening, AIRDI 150 high-carbon high-chromium, AIRKOOL air-hardening, and NU DIE V hot-work tool steels.

Your Crucible representative can show you how to save time and money with Crucible Hollow Tool Steel Bars. *Crucible Steel Company of America, Oliver Building, Pittsburgh 30, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

QUANTITY PRODUCTION OF GREY IRON CASTINGS

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Digest of the Week in Metalworking

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IT PAYS TO READ IRON AGE ADS TOO!

TECHNICAL BRIEFS

CARBIDES: Direct Casting

Furnace melts tungsten powder in 3-min., centrifugally casts carbide formed within the assembly . . . Entire operation is automatic.

A new electrically operated, completely automatic furnace which can reach 8000°F and melt 24 lb of tungsten powder in just three minutes is said to make direct casting to shape practicable, eliminating the need for pressing and sintering carbides in powder form.

Carbon pickup in the furnace, produced by Component Parts Co., Whittier, Calif., is made from the graphite crucibles employed. Other advantages besides its speed include a highly efficient use of power because of its extremely rapid thermal gradient. Furnace reaches operating temperature from a standing start; thus consumes no power when not in use and need not be held at a normally high temperature.

Three Graphite Crucibles

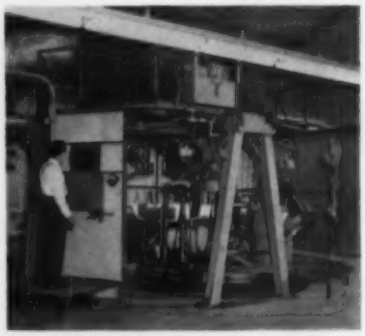
In operation, tungsten powder is loaded in each of three identical 4-in. graphite crucibles, each of which contacts a graphite electrode at its base.

Crucibles are then raised by a hydraulic lift and locked together with their open ends nesting tightly. Three-phase power is introduced, and crucibles are resistance heated to the melting point of the tungsten and subsequently form tungsten carbide. The casting machine at the center of the furnace assembly is raised and started rotating. As soon as gassing of the crucibles ceases, they are released and their contents dumped into a centrifugal mold inside the casting machine. Crucibles are then cooled for the next loading-melting-casting cycle, while the tungsten carbide solidifies in the graphite molds inside the casting machine.

The entire process, except loading of crucibles, is remotely controlled and can be handled by a single operator from one control panel. Hydraulic and pneumatic actuators and locks are thoroughly phased for safety and efficiency.

WANT MORE DATA?

You may secure additional information on any item briefed in this section by using the reply card on page 81. Just indicate the page on which it appears. Be sure to note exactly the information wanted.



To 8000°F . . .

Metals:

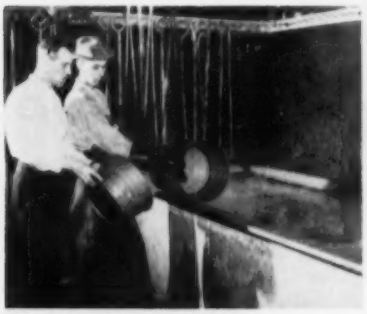
Alloy withstands hot H_2SO_4 for 8 years.

A pickling tank containing 4 to 8% of 60 to 66 degrees Baume sulphuric acid solution at temperatures ranging from 150 to 165° F has been in operation 8 years with practically no maintenance.

The tank is used for galvanizing sheet metal products at The F. H. Lawson Co., Cincinnati, O. Built in 1947 from a special sulphuric acid-resisting stainless steel produced by Carpenter Steel Co.'s Alloy Tube Div., the unit is 2½ ft. deep, 4 ft. wide and 12 ft. long. It has been in constant use, most

of the time on two shifts.

Before building the special stainless alloy tank, the company tried using wood, acid-proof cement and other grades of stainless steel. The wooden tanks had a short life, and needed constant replacing. Cement-lined tanks, reinforced on the inside with paving bricks, lasted about twice as long as those made of wood. But cracking and other conditions occurred that made repairs almost impossible.



Acid-resistant tank . . .

Two more pickling tanks were made from other stainless steels in 1948 and 1949. Both required a great deal of maintenance after 3 to 4 years service. One had deteriorated so badly that it had to be taken out of operation.

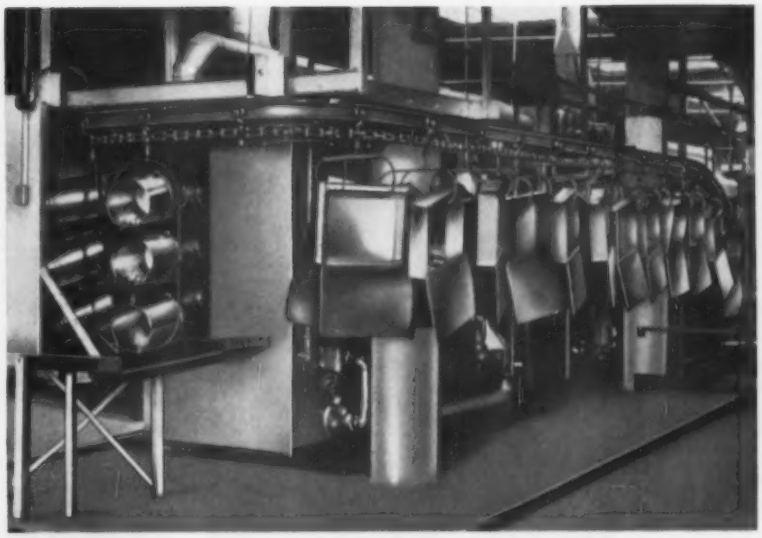
Finishing:

Small parts painted with new tumbler.

To save painters many dull hours arranging thousands of small parts on screened tables prior to spray painting, the Glenn L. Martin Co., Baltimore, has built an experimental tumbler rig that paints detail parts 10 times faster.

Using the tumbling principle, a 10-gal paint can with baffles, a detachable screen at one end, and a small hole at the other end, is made to rotate in a fixture horizontally with the detail parts inside. At six-sec intervals during the tumbling process, paint and air are sprayed alternately through the small hole.

The complete cycle for painting the hundreds of parts on an average load is approximately two minutes, including loading and unloading.



Should you purchase a cleaning or processing machine NOW?

This is a problem that confronts many a plant today

"Costs have risen. Selling is more difficult. Profit margins have been shaved. Should capital funds be invested in new equipment now or should they be held in anticipation of a change in market conditions?"

The answer rests upon whether you are willing to *gamble the future* of your company by waiting.

"GUESSING IS DANGEROUS!" Companies which sell "quality" products can't take a chance on trying to achieve "quality control" with old-fashioned, high-cost production methods.

Those metal parts and products producing companies which order modern A-F Cleaning and Finishing Machines today will be able to compete tomorrow.

INVESTIGATE THOROUGHLY. Before you buy any cleaning or processing machine write Alvey-Ferguson. If one of our "standard" machines will not "do the job"—and at lower cost, remember the A-F Engineers are specialists in *custom-built equipment.*

Now is the time to decide on new, and more efficient equipment. Write us for new catalog today.

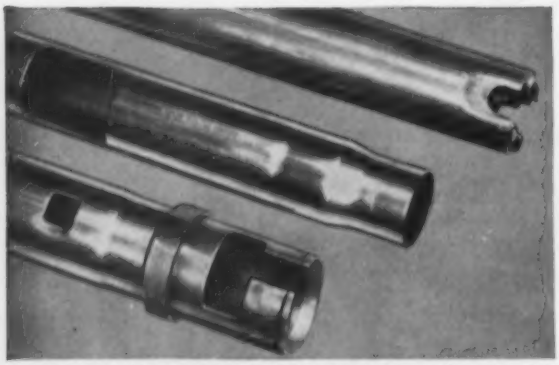
A-F

A-F *ENGINEERED*
Cleaning and Finishing Machines

Plant-wide Conveying Systems
Pre-Engineered Conveyors—Roller, Wheel, Belt, Trolley

THE ALVEY-FERGUSON CO., 557 Disney Street, **CINCINNATI 9, OHIO** and Azusa, California

Republic Alloy Steels help Johnson make dependable



YOU CAN SAVE ON TUBULAR PARTS LIKE THESE when Republic does the tube fabricating. Republic's Steel and Tubes Division is equipped to handle all kinds of tough fabricating jobs—has the machinery, the experience and the ability to work out the most economical method of making quality tubular parts. And that includes complete assemblies.

SAVE UP TO 66% OF YOUR STORAGE SPACE with Republic Collapsible Boxes. This PB-127 unit solves the problem of storing and shipping emtpy boxes. It's designed for heavy-duty service. Can be tiered when loaded or empty—collapsed or set up. It is a one-piece unit. Pin and slide bolt arrangement assures positive locking.

REPUBLIC STEEL CORPORATION
3104 East 45th Street
Cleveland 27, Ohio

REPUBLIC STEEL

Please send more information on:

☐ Cold Drawn Alloy Bars ☐ Boxes and Skids
☐ Mechanical Tubing ☐ Free-Machining ENDURO®

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Company_____

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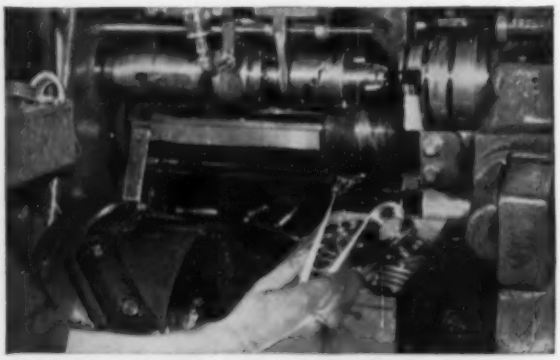


GIVE YOUR DUPLICATE PARTS THE HIGH MECHANICAL and corrosion-resisting properties of stainless steel. Do it without a heavy production penalty. Simply set up and run Free-Machining ENDURO Stainless Steel Bars. Two grades are fully 90% as machinable as Bessemer screw stock. These high-quality, cold drawn bars provide close tolerance, accuracy of section, uniform soundness, a fine surface finish. Available in hot-rolled bars as well as cold finished bars and wire.

outboard motors

The combination of engineering know-how and use of only the highest quality materials, including Republic Cold Drawn Alloy Steels, provides the key to the built-in dependability of Johnson Sea-Horse Motors.

Highly machined parts, such as the connecting rod bearing retainer shown above and the spiral bevel gears that drive the propeller shaft and other parts, are made from Republic Cold Drawn Alloy Steels.

As in many new product developments, certain difficulties were encountered in the initial stages of production. The bearing retainer, considered to be one of the most difficult parts in existence to machine, is a case in point.

During rough broaching, chips welded to the broach and tearing of the metal occurred on bearing pockets. A Republic Field Service Specialist was invited to work on this problem with Johnson Engineers. A solution was worked out through close cooperation and teamwork. The blanked parts were heat-treated to increase Brinell hardness. Broaching improved immediately. Chip adherence was eliminated. Surfaces were much smoother.

Republic supplies Johnson with cold drawn alloy steel bars for better machinability, longer tool life and the fine finish needed for parts on their new line of quiet motors.

You can put these qualities of Republic Cold Drawn Alloy Bars to work in your steel parts—plus high strength, close tolerance, toughness, hardenability, accuracy of section. And Republic metallurgists and machining specialists stand ready to help you uncover the answers to tough cost and production problems, ready to help you get the most out of the Republic Cold Drawn Alloy Bars you buy. The coupon will bring you more information.

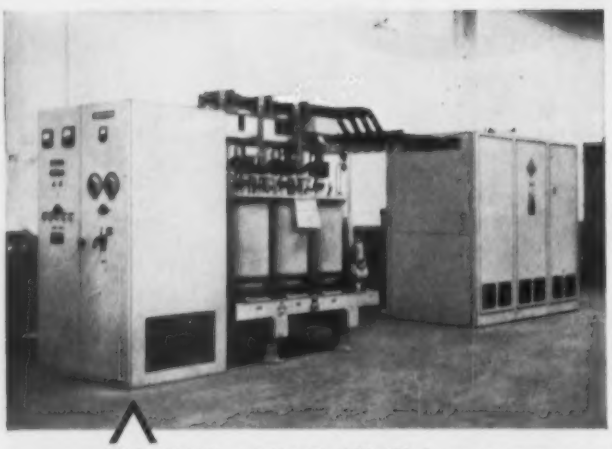
Gear action on Johnson Motors is smooth, positive, quiet. Photo illustrates sequence of machining operations performed on the spiral bevel gears that drive the propeller shaft. Republic Cold Drawn Alloy Steels give these parts added strength and a fine surface finish.

REPUBLIC STEEL

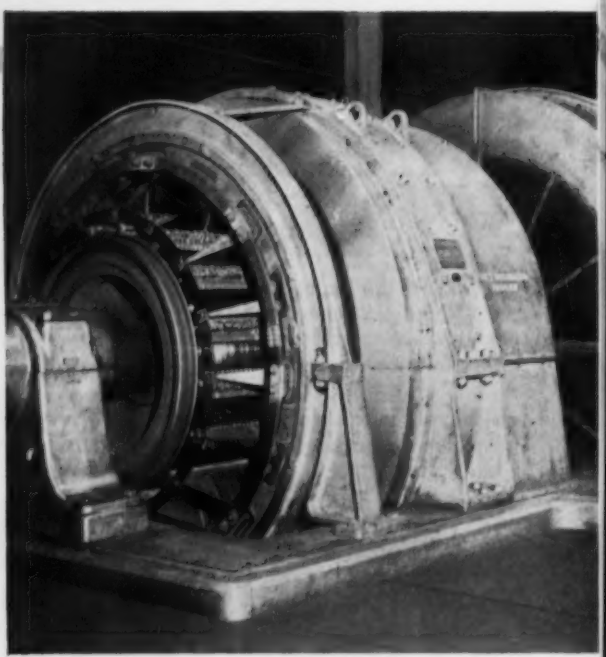
World's Widest Range of Standard Steels and Steel Products

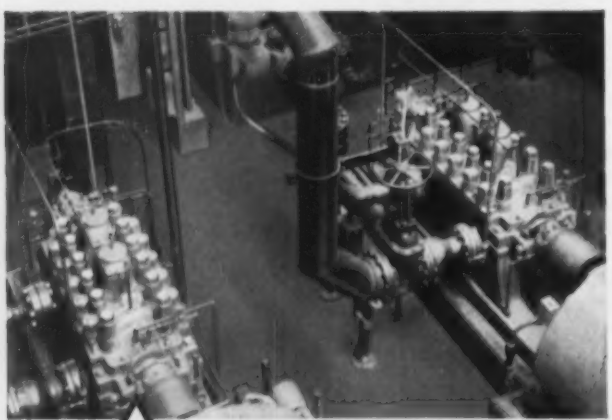
Helping Youngstown Top Steel Year After

ALLIS-CHALMERS Steel Mill EQUIPMENT



This 1000-kw, 250-volt Allis-Chalmers mercury arc rectifier furnishes direct current to cold mill auxiliaries. An additional low-first-cost, high efficiency unit of this type and capacity is being installed in the tin mill.



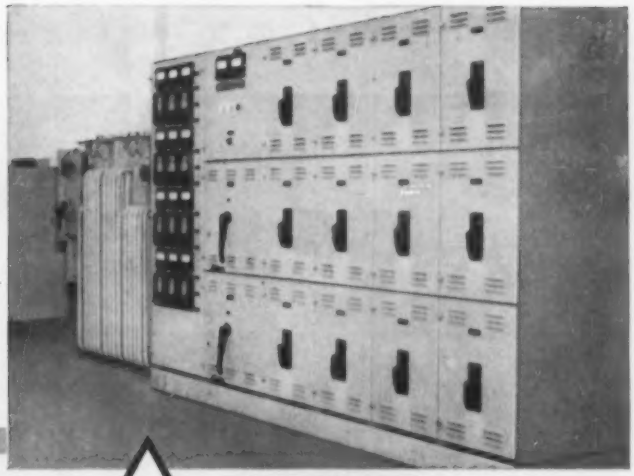


Two 6 by 4 five-stage Allis-Chalmers descaling pumps rated 1000 gpm, 1140 psi. Allis-Chalmers has also furnished fire pumps, motors and controls for other applications at the Indiana Harbor mill.

Equipment Installed in 1940 Still Going Strong as new Equipment is Added to Keep Pace with Today's Production and Quality Requirements

A-C ALLIS-CHALMERS **ALLIS-**

Obtain Production Year



Allis-Chalmers 1000-kva, 440-volt substation serves the cold mill at Youngstown's Indiana Harbor Works. Unit has non-flammable *Chlorextol* liquid-filled transformer. Additional substations of larger capacity are now being furnished for expansion at this plant.

These two Allis-Chalmers 6000-kw, 600-volt motor-generator sets supporting the 54-inch hot strip mill have been operating at rated capacity and above for 15 years — with minimum maintenance.

SWITCHGEAR, transformer, substation, and rectifier equipment was recently added to the growing list of Allis-Chalmers installations at The Youngstown Sheet and Tube Company's Indiana Harbor Works. These Allis-Chalmers units were specified for the new cold mill that is part of the major expansion program at the Indiana Harbor plant.

For many years, Allis-Chalmers equipment has served Youngstown well. Motor-generator sets, motors, pumps, *Texrope* drives, transformers, switchgear—all have been supplied over the years to help keep production at The Youngstown Sheet and Tube Company plants modern, flexible and economical.

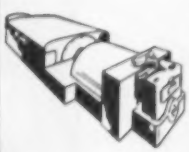
You too can take advantage of the wide range of Allis-Chalmers products and superior service . . . backed by experience gained serving the steel industry since the days of the famed Corliss engine drives. For help in planning new facilities or modernizing present plants, contact the A-C office in your district, or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-4836

CHALMERS

Other Allis-Chalmers Equipment for the Steel Industry

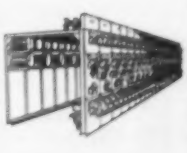
Wide Range of Motors for main mill and auxiliary drives — ac or dc — from 1 hp to 10,000 hp — and supporting rectifiers or m-g sets.

Blast Furnace Blowers are an important part of the complete A-C line of single and multi-stage centrifugal blowers, axial and rotary compressors, and vacuum pumps for the steel industry.



Power Generation Equipment includes steam turbine-generator units 2000 kw and larger for fluctuating steel mill loads. Also condensers, pumps and auxiliary drive motors.

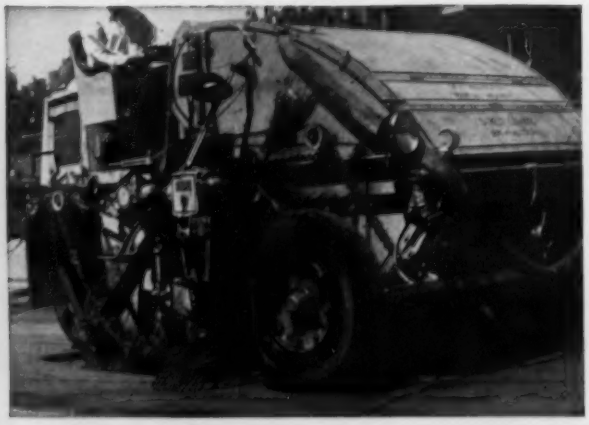
Steel Mill Control offered by Allis-Chalmers includes constant potential and variable voltage systems, magnetic amplifier, electronic and mechanical regulators, and liquid rheostats.



Chlorextol and *Texrope* are Allis-Chalmers trademarks.

C F & I - W I C K W I R E M A K E S W I R E

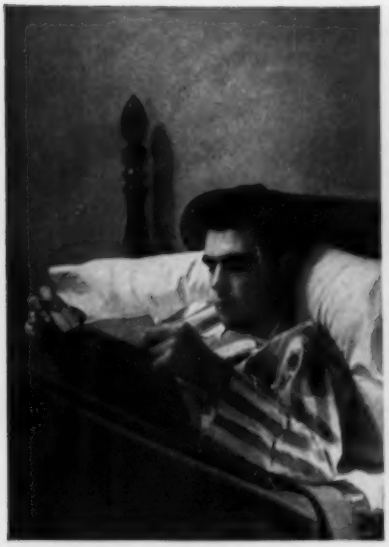
PLANE ANSWERS pilot's every direction—thanks to strong, flexible control cables made of CF&I-Wickwire Aircraft Cord Wire. This wire undergoes extremely rigid testing to meet highly exacting specifications.



FOR A CLEAN SWEEP. Power street-sweeping machines use bristles of tough CF&I-Wickwire Flat Tempered Brush Wire.

BEAUTY TIPS. Tons of wire are used by beauty shops in the form of bobby pins, hairpins and curlers. CF&I-Wickwire Hairpin Wire is used for these and many other mass-produced cosmetic items.

F O R T H O U S A N D S O F U S E S



"SPRING TIME" COMFORT. Coil bedsprings, mattress inner springs and mattress edge reinforcing are all made of CF&I-Wickwire Spring Wire in several tempers and hardnesses.

ROLLING ON WIRE. Strong, rigid spokes for automobile wheels are made of CF&I-Wickwire Spoke Wire.

MAKING BOOK. This eager young student's notebooks and textbooks are bound with CF&I-Wickwire Bookbinder Wire and Spiral Binding Wire.

from holding a plane on its course, to keeping a curl in place... wire is the practical answer!

Wire can answer an almost incredible variety of needs because it can be varied to provide thousands of different combinations of mechanical and physical properties. From wire that can be easily twisted by hand to a rigid, self-supporting wire, it can be "tailor-made" to meet almost any set of requirements. Whatever you assemble, manufacture, or process, look into the many advantages of using CF&I-Wickwire Wire. You'll like doing business with CF&I-WICKWIRE and the careful attention given your own particular requirements.

CF&I-Wickwire Wire is made in plants conveniently located from coast to coast. For detailed information, write our nearest district sales office.

3143

CF&I—WICKWIRE WIRE

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver
El Paso • Ft. Worth • Houston • Lincoln (Neb.) • Oklahoma City • Phoenix • Pueblo • Salt Lake City • Wichita
PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

NEW EQUIPMENT

New and improved production ideas, equipment, services and methods described here offer production economies . . . for more data use the free postcard on page 81 or 82

Personnel carrier for intraplant movements

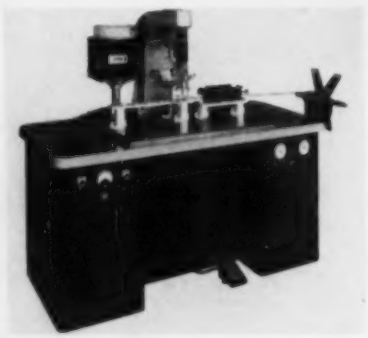
New electric personnel carrier for plant tours or for intraplant movements has a capacity of 2000 lb with a deck 54 in. long x 40 in. wide, 9½ in. off the floor. Its top speed is 6 mph with a capacity load. For plant tours, four removable air cushion seats are furnished. Guide or operator can stand or sit on the battery compartment. With all controls for the 3 speeds and braking on the floor, both hands of the operator are free for maneuvering. Since the truck is battery-powered, its drive is quiet and fume-free. With seats removed, miscellaneous freight can be delivered throughout the plant. *Lewis-Shepard Products, Inc.*

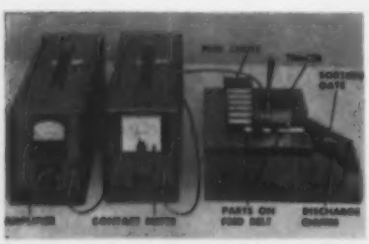
For free copy circle No. 32 on postcard, p. 81.

Stud welder permits automation in fabrication

Utilizing the Graham process of stored energy stud welding this automatic welder is fixtured for welding studs to strip stock fed continuously from a coil. Stud feed to the gun is automatic. Thus used, the machine does not require the constant attention of an operator. Studs can be welded at the rate of approximately 80 per min while power consumption averages 1½ kva. This unit can also be furnished with a revolving index table to permit stud welding of various individual parts or assemblies. A pedal is supplied to permit single stroke operation of the gun with automatic stud feed also possible. *Graham Mfg. Corp.*

For free copy circle No. 33 on postcard, p. 81.





Sorts parts according to surface roughness

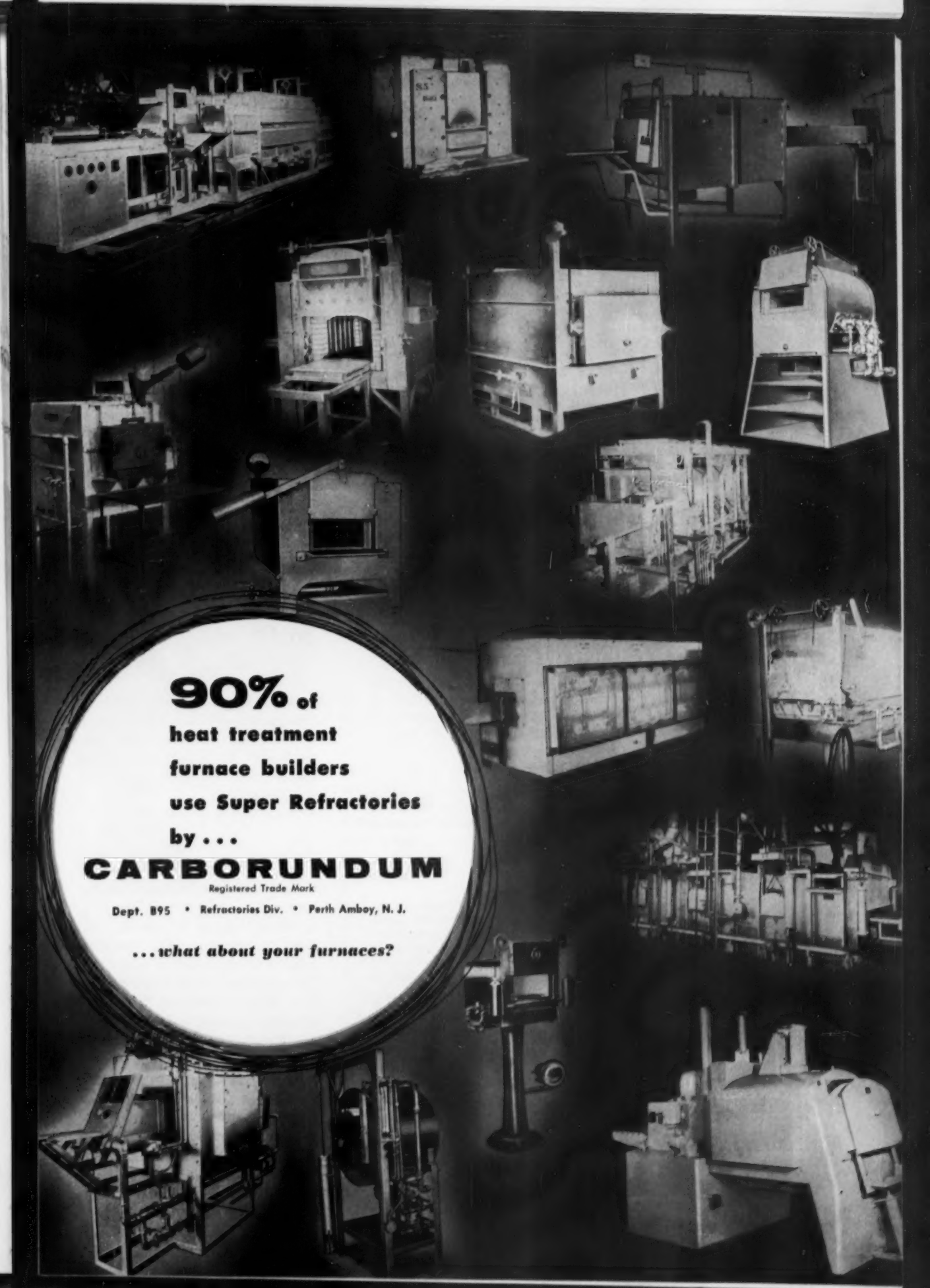
Equipment that permits the addition of surface-roughness inspection to automated production setups sorts parts in accordance with microinch roughness measured along an OD or flat surface, including tapers and parts with grooves or shoulders. Workpieces, from a feed chute, move on a conveyor belt beneath a profilometer tracer. Parts are then automatically directed into accept or reject discharge chutes in accordance with their roughness. *Micrometrical Mfg. Co.*

For free copy circle No. 34 on postcard, p. 81.

High torque magnetic brake takes less space

New H Style 1000 Series magnetic brake has been introduced for use in the 25 to 50 hp range with both the old and newly re-rated NEMA frame sizes. Improved mechanical design enables the brake to develop higher torque, yet requires up to 6 in. less clearance for housing removal than the old style brake it replaces. Overall length has been reduced as much as 2¼ in. with weight reductions of more than 20 pct. Two sizes are rated at 125 and 175 lb ft torque. *Stearns Magnetic, Inc.*

For free copy circle No. 35 on postcard, p. 81.


90% of
heat treatment
furnace builders
use Super Refractories
by . . .
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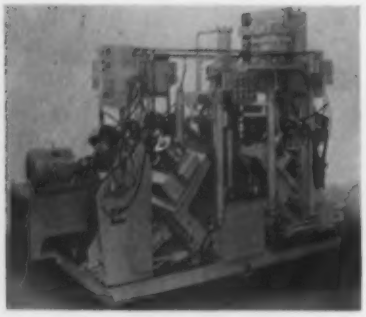
Dept. B95 • Refractories Div. • Perth Amboy, N. J.
. . . what about your furnaces?



Combines assembly and shielded arc welding

A new high production machine utilizes automation methods to combine assembly and argon shielded-arc welding operations. With the equipment, one operator can assemble and weld 2 8-in. diam sheet metal fluid coupling parts at a rate of 300 finished assemblies per hr. The machine consists of a special vertical hydraulic assembly press and three standard argon shielded-arc welding heads. High production rates are achieved by performing the welding operation on two fixtures while parts are being assembled in a third fixture by the press. *Expert Welding Machine Co.*

For free copy circle No. 36 on postcard, p. 81.

Filler pump

Low price filler pump for medium and light greases attaches to any 25 to 50-lb original refinery container by means of 3 thumb screws. The pump will fill a 1-lb capacity grease gun in 30 seconds, eliminating contamination, air pockets and messy hand-filling methods. *Lincoln Engineering Co.*

For free copy circle No. 37 on postcard, p. 81.

Mechanical conveyor

A lightweight mechanical vibrating conveyor is compact in design, easy to install, simple to operate and quiet in operation. The conveyor handles a wide range of materials. The conveyor, called the LMV, is built in 12 ft sections. Units are available in deck widths of 5, 8, 12, 18 and 24 in. Sections may be easily cut to obtain any odd length. Height from floor is 14 in. maximum. The LMV will move materials of good conveyability up to 45 tph. An outstanding feature is a totally enclosed, oil immersed drive. *Jeffrey Mfg. Co.*

For free copy circle No. 38 on postcard, p. 81.

Save $175.00 PER WEEK on THERMOCOUPLE MAINTENANCE

PEERLESS RESTORER®

1 LONGER COUPLE LIFE

A leading metal alloy producer is now saving $175 per week just on thermocouple replacement. Since installing the Restorer to monitor his thermocouples, he replaces them on an average of once a month instead of once a week.

2 USE FEWER COUPLES

The Restorer's continuing check on thermocouple operation makes the use of extra "insurance" couples unnecessary. One of the world's largest basic steel producers now uses 3 thermocouples, monitored by the Restorer, where he previously used 6.

3 FIND TROUBLES FASTER

Cut the cost of routine manual inspection of thermocouple circuits by using the Restorer to check couples **during every cycle.** Even minor troubles are corrected and recorded on your pyrometer chart, indicating where to find a couple or circuit needing permanent repair or replacement.

ONE RESTORER CHECKS MANY COUPLES ON HEAT-TREATING AND MELTING FURNACES

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FANS · BLOWERS · MOTORS · ELECTRONIC EQUIPMENT
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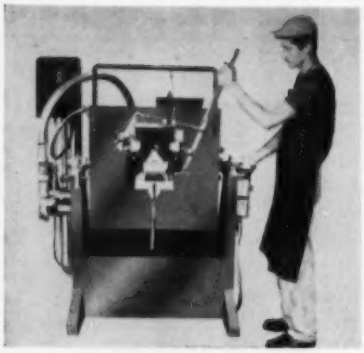
SEE METAL SHOW EXHIBIT—BOOTH NO. 1155



Automation produces do-it-yourself metal castings

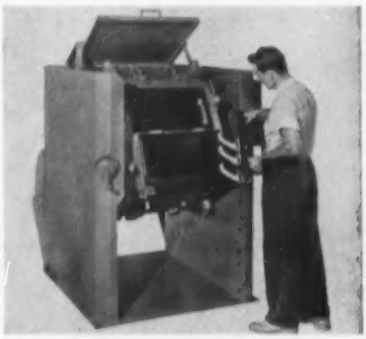
New automatic gravity casting machine, called Grav-O-Matic, produces permanent mold castings at unit cost saving, it is reported. Grav-O-Matic is "automation" in its operation and can be controlled by unskilled labor. Automatic metal temperature control, pouring control and casting cycle eliminate production variability. Production rates are claimed to be 20 to 30 pct higher than other methods. The castings are said to have high tensile strength plus a grain structure equivalent to a forging. Closer dimensional tolerances that are obtainable reduce subsequent machining. The gravity casting machine is available for in-plant lease. *Automation-Engineering Corp.*

For free copy circle No. 39 on postcard, p. 81.

Bright lustrous finish given to aluminum castings

Designed for coloring of aluminum castings, a new 8-door stationary fixture finishing machine has a door on each flat of a single compartment cylinder. Fixture pads are attached to the octagon side walls of the compartment just inside the door opening. Fixtures are in the form of grids, which fit attached pads. Inside the cylinder the fixture is held in position during the processing operation by the pads and the pressure of the closed door pushing it firmly into the contoured pad. Fixtured parts are held by fixture grids to effectively expose them to processing media. Solution or processing media need not be removed from machine when removing work load from the compartment. Compartment size varies up to 48 in. long x 42 in. diam. *Roto-Finish Co.*

For free copy circle No. 40 on postcard, p. 81.



Gear checker inspects and sorts shaper-cut gears

Spur and helical gears produced by conventional gear shaping methods can be inspected and sorted for three variables in tooth dimensions in the new Red Ring automatic motorized gear checker. The checker inspects gears by electronic indicators and master gear means for incomplete stroke, oversized and undersized teeth, and thick or thin teeth. Gears that do not meet inspection requirements for these dimensions are directed into chutes which sort out oversized, undersized, thick-tooth and thin-tooth gears. Each tooth in gears passing through the checker is individually checked for thickness and rejected if it does not meet tolerance specifications. Gears are loaded by hand and fed through the various inspection stages automatically. *National Broach & Machine Co.*

For free copy circle No. 41 on postcard, p. 81.

Designed for high production grinding of taps

Equipped with automatic work handling, this machine is specifically designed for high production grinding of standard taps. A wide range of work speeds are available for effective grinding conditions on all tap sizes from 0 to 5/8 in. diam. Individual lead screws for each pitch have 1/3 the pitch of the thread being ground, insuring long lead screw life. Grinding cycles are held constant and uniform as rapid wheel advance, depths of cut and rapid withdrawal are positively controlled through a simple cam action. Wheel truing is automatic before or after a finish cut and is counter controlled when more than one piece is ground per dressing. Wheel sizes are 20, 18 or 16 in. The wheel slide is held against a positive stop with uniform hydraulic pressure for automatic, positive size control. The machine has provision for multiple cuts. *Jones & Lamson Machine Co.*

For free copy circle No. 42 on postcard, p. 81.

Ruthman GUSHER coolant pumps

ON THE LEADING MACHINES AT THE MACHINE TOOL SHOW

MODEL 11021

You'll see Ruthman Gusher Pumps on many of the important new machines at the Machine Tool and Production Engineering Show, because leading machine tool manufacturers know that Gusher Coolant Pumps are precision built specially for the exacting requirements of Machine Tools. Specify Gusher Pumps on your new equipment for best results.

THE RUTHMAN MACHINERY CO.

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NON-FLUID OIL

TRADE MARK REGISTERED

NON-FLUID OIL

MORE AND *BETTER* LUBRICATION PER POUND!

NON-FLUID OIL lubricates dependably, until entirely consumed, protecting costly anti-friction bearings and prolonging their life. Dollar for dollar, pound for pound, day in and day out, NON-FLUID OIL gives *more* and *better* lubrication.

NON-FLUID OIL is tops for motors! Motors run longer, cooler, and cleaner with NON-FLUID OIL. Ordinary oils leak, creep, or throw out and soak motor windings—resulting in short circuits and costly burn-outs. Greases thin out and act the same way.

See NON-FLUID OIL in action. Write for free testing sample, without obligation, and useful Bulletin.

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292 Madison Ave., New York 17, N. Y. • Works: Newark, N. J.

WAREHOUSES: Birmingham, Ala. • Atlanta, Ga. • Columbus, Ga. Charlotte, N. C. • Greensboro, N. C. • Greenville, S. C. • Chicago, Ill. Springfield, Mass. • Detroit, Mich. • St. Louis, Mo. • Providence, R. I.

Also represented in other principal cities

NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture.

Ratchet lever hoists

Two light but powerful coil chain ratchet lever hoists have capacities of 1½ and 3 tons respectively. Reduction in the hoists is achieved through specially-designed, compound levers instead of gears. The hoists are made of malleable iron or aluminum alloy. Are tested at 100 pct above capacity and can be easily disassembled in the field for fast, efficient servicing. Single chain has standard lift of 56½ in., minimum distance of 14 in. between hooks and requires a lever pull of

60½ lb to lift rated capacity. Standard lift of double chain model is 57 in., 18½ in. between hooks, takes lever pull of 62 lb to lift rated capacity. Double chain models are easily converted to single chain. *Coffing Hoist Div.*

For free copy circle No. 43 on postcard, p. 81.

Plastic aluminum

Atomized aluminum has been combined with a patented vinyl vehicle to form a new metal in putty form called Duro Plastic Aluminum. The product is ready to use as it comes from the tube or can. No catalysts or hardening agents are required. It is applied cold and will adhere to metal, wood, leather and many other surfaces. It air dries to a metallic hardness on a few short hours, and may be filed, sanded, drilled or tapped. One of its major uses is as a blemish remover for steel castings and other metal products. Not affected by oil, water, gasoline or naphtha; will withstand up to 600° F heat. *Woodhill Chemical Co.*

For free copy circle No. 44 on postcard, p. 81.

Flame Hardened Embossing Rolls Have a LONGER PATTERN LIFE –

Rolls, such as this, are made at National Forge, engraved by the customer and returned to us for flame hardening.

These delicate patterns must hold up under high speed embossing of continuous strips of aluminum. The economical flame hardening process of heat treat imparts the desired hardness to just the portion of the surface necessary.

National Forge has equipment to flame harden forgings up to 24 inches in diameter and up to 21 feet long to regulated depths of 1/16 inch to 3/8 inch.

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Send for detailed information on various applications of the FLAME HARDENING PROCESS

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PRODUCES BETTER STEEL FORGINGS AND MACHINE WORK

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Certified ANALYSIS can be given on any Ulbrich material.

COMPLETELY EQUIPPED CONVERTING WAREHOUSE

STRIP • Flat Wire and other Stainless Steels
Converted to your closest requirements and
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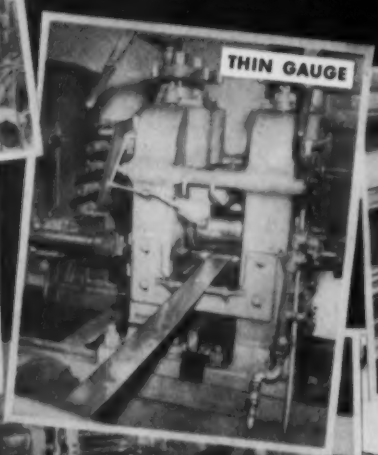

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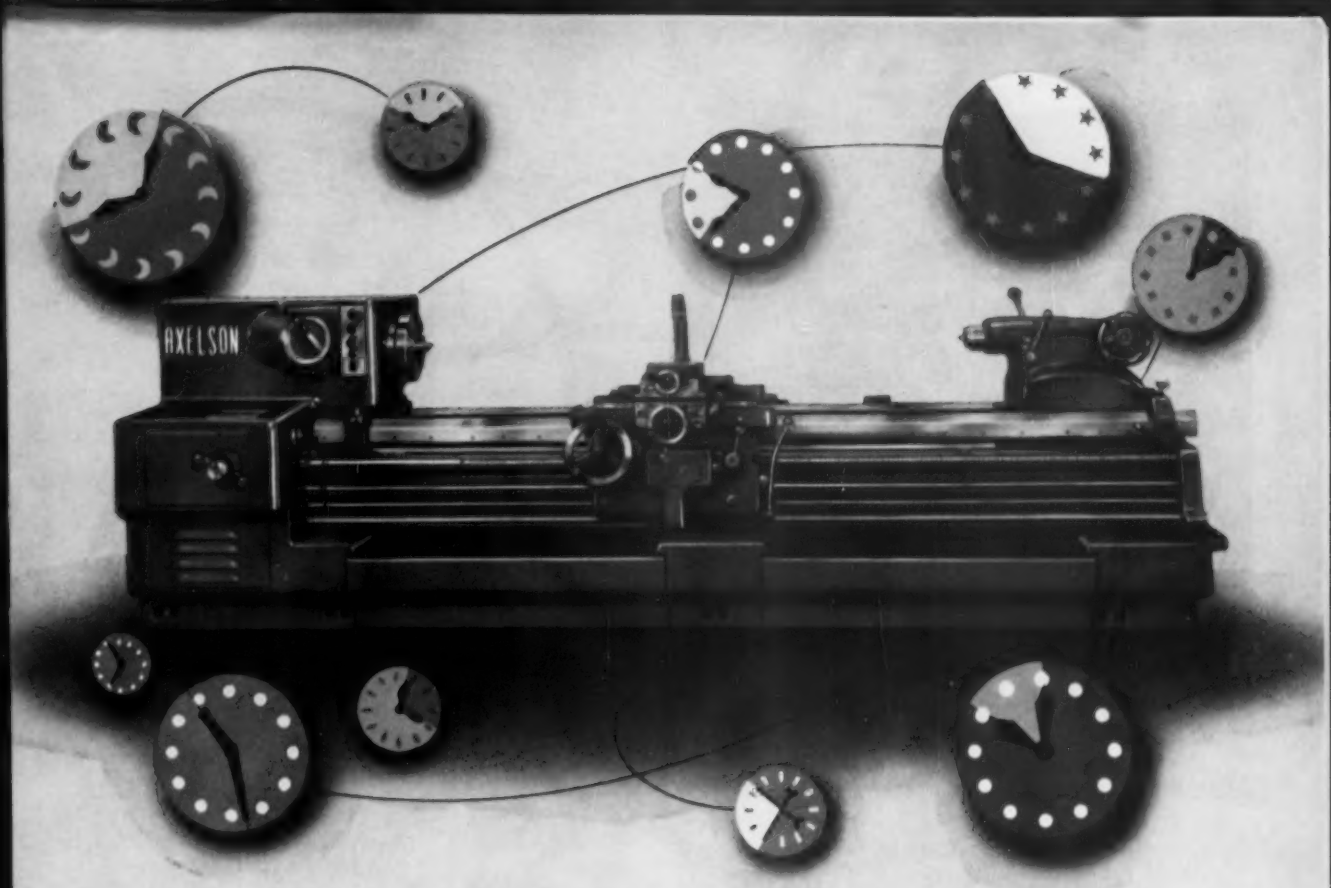

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that makes man hours mean still more

Companies concerned with the problem of making each man-hour more productive are continuously experimenting with the fourth dimension—TIME. Here is a machine tool designed with that dimension in mind. Axelson engineers have attacked the problem of lathe design from the point of view of the man who will operate the machine and the work that will be performed on it.

You'll find this machine makes each setup easier and faster. You'll find more power to get the most out of every cut; you'll also find a wider range of available speeds—speeds that get the most out of all types of ferrous and non-ferrous materials.

We'll be glad to have your nearby Axelson man tell you personally about the new Axelson lathe; just drop us a line.

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make man hours mean more

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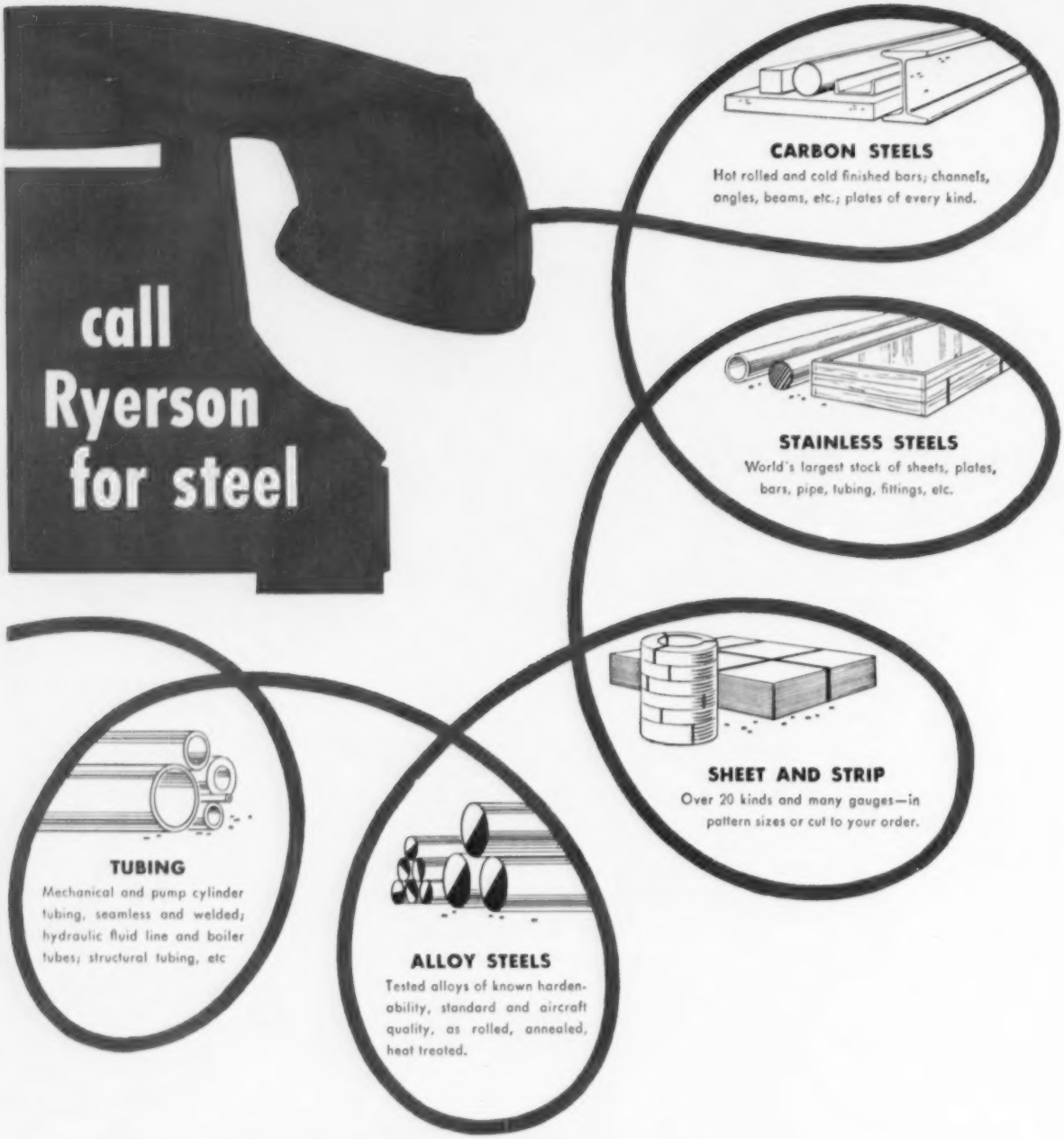
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Hot rolled and cold finished bars; channels, angles, beams, etc.; plates of every kind.
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World's largest stock of sheets, plates, bars, pipe, tubing, fittings, etc.
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Over 20 kinds and many gauges—in pattern sizes or cut to your order.
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Mechanical and pump cylinder tubing, seamless and welded; hydraulic fluid line and boiler tubes; structural tubing, etc
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Tested alloys of known hardenability, standard and aircraft quality, as rolled, annealed, heat treated.

Quick delivery from nation's largest stocks

Need steel in a hurry? Ryerson stocks are the nation's largest, so one call to your nearby Ryerson plant brings quick delivery of almost any kind of steel in almost any quantity—all of it certified for high uniform quality.

Do you want your steel prepared for immediate use? Ryerson facilities include the most modern close-tolerance equipment for sawing, shearing and flame cutting to your specifications.

Of course, current heavy demand makes it difficult to keep all sizes always on hand but our stocks are being replenished continuously. Steel that's out of stock today may be in stock tomorrow. And experienced Ryerson steel men will help you make the most of steel on hand. So for everything in steel and steel service . . . call Ryerson.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

The Iron Age SUMMARY . . .

President Eisenhower's illness not expected to slow tempo of metalworking . . . Mills still trying to match production with demand . . . '56 outlook good.

Still Catching Up . . . Steel producers are still trying to match production with order volume. But incoming business is setting a terrific pace that is likely to continue into 1956.

The mills are handicapped by a shortage of steelmaking capacity. Expansion programs now in the works will not make themselves felt until next year. These programs will be carried through despite government action in clamping the lid on fast tax writeoffs for steel.

Meanwhile, the illness of President Eisenhower is expected to have little or no effect on the fast tempo of business in the metalworking field. Industry leaders feel that government business will carry on as before under the direction of administration officials familiar with the President's thinking.

Sell-out For '55 . . . For all intents and purposes, virtually all steel products are sold out for balance of the year. Allocation cutbacks instituted by the mills have helped to bring deliveries more into line with promises. But the demand is still there. And it will continue strong until inventories have been rebuilt.

Delivery lags have reached the point where even large consumers have to use their ingenuity to keep production lines going. Some are resorting to intra-company trading of critical products to carry them over tight spots. Others are still paying a premium to get emergency tonnages from warehouses.

Warehouse Troubles . . . But warehouse inventories are declining. The dual pressure of strong demand and slow deliveries from the mills have placed warehouses in a position where they are receiving from a third to a half less steel than they are shipping.

Pressure from the railroads has opened up plate mill schedules for freight car builders even though these orders hit the mills when production schedules already were overloaded. One reason for this is that railroad cars are considered a basic defense item. Even so, the freight car makers are getting less steel than they would like. As a result, it is doubtful they can make more than 4000 new cars per month during the balance of the year.

Freight Car Outlook . . . There will be a backlog of more than 50,000 freight cars at year's end. But there was a net loss in freight cars of 50,000 units in 1954 due to scrap losses exceeding new car deliveries. This year's loss may go to 60,000. Freight car makers will be busy in 1956.

Steel Output, Operating Rates

	This Week	Last Week	Month Ago	Year Ago
Production (Net tons, 000 omitted)	2,316	2,316	2,268	1,664
Ingot Index (1947—1949=100)	144.0	144.0	141.0	103.5
Operation Rates				
Chicago	98.0	96.0	96.0	70.0
Pittsburgh	100.0	99.0	97.0	67.0
Philadelphia	96.0	97.0	92.0	58.0
Valley	99.0	95.0*	93.0	59.0
West	100.0	95.0*	96.5	85.5
Detroit	97.0	92.0	88.0	89.0
Buffalo	105.0	102.0	100.0	56.5
Cleveland	99.0	102.0*	98.0	73.5
Birmingham	96.0	96.0	94.0	71.0
S. Ohio River	86.0	82.0*	91.0	79.0
Wheeling	100.0	101.0*	97.0	93.0
St. Louis	88.0	92.0	105.0	68.5
Northeast	96.0	95.0	85.0	51.0
Aggregate	96.0	96.0	94.0	69.0

*Revised

Prices At A Glance

(cents per lb unless otherwise noted)

	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	5.174	5.174	5.174	4.801
Pig Iron (Gross ton)	$59.05	$59.09	$59.09	$56.59
Scrap, No. 1 hvy (gross ton)	$44.83	$44.17	$43.83	$30.17
Nonferrous				
Aluminum, ingot	24.40	24.40	24.40	22.20
Copper, electrolytic	43.00	43.00	43.00	30.00
Lead, St. Louis	15.30	14.80	14.80	14.55
Magnesium, ingot	33.25	33.25	33.25	27.75
Nickel, electrolytic	64.50	64.50	64.50	63.08
Tin, Straits, N. Y.	96.75	97.00	95.625	93.25
Zinc, E. St. Louis	13.00	13.00	12.50	11.50

STEEL PRODUCT MARKETS

Warehouse Supplies Tighter

Sustained demand beginning to tell on warehouse inventories . . . Tightest items are hot and cold-rolled sheets, light plate, and structurals . . . Outlook gloomy.

◆ WAREHOUSE inventories are taking a terrific beating. The distributors are up against a deadly combination of cutbacks from the mills and demand from regular customers and people they never hear from except in a tight market.

Says one harassed warehouse man: "From August on, we've really been eating into inventory, and August was one of our best months on record." Says another: "People are coming to us now who wouldn't under easier times."

Tightest items at the warehouse level are hot and cold-rolled sheets, light gauge plate, and structurals. Mill deliveries to warehouses are running as much as seven weeks behind. And there's little chance of improvement for balance of this year and into 1956.

Meanwhile, the word from Washington is that Office of Defense Mobilization is keeping the heavy plate expansion program open due to a large projected deficit in mobilization supplies of this product. (See page 22.) The steel castings goal is still under study. But the programs on electrolytic tin plate and gray iron castings are, or soon will be, closed.

There's no sign of a break in demand for any product. Merchant wire, which had been off seasonally, is back in the picture. Demand from the railroads and other consuming industries plus flood emergency requirements is keeping the plate and structural market very tight.

Mill allocation cutbacks are helping some, but the apparent improvement in backlogs and delivery promises is just that—no real improvement is in sight.

SHEETS AND STRIP . . . **Pittsburgh:** mills currently producing at full capacity but deliveries are holding at between eight and 10 weeks behind promises; by end of year through blanked out orders in fourth quarter, the mills will have shortened delivery schedules but they'll still be about 45 days behind promises. **Chicago:** consumers, whether getting delivery from the mills or in part from warehouses, are taking all they can get; mill sources report automakers are gobbling up all the sheet available and have been setting some aside in inventory during the brief model changeover. **Detroit:** no letup in demand even with the model change; carryovers into first quarter are expected to be heavy.

BARS . . . **Pittsburgh:** customer quotas will take additional cuts during fourth quarter; if there are no further slashes in semi-finished steel supply, bar mills will be in fair shape by year's end. **Chicago:** most bar consumers are finding it tough to get all they need; bar producers are nearly through fourth quarter on hot-rolled bar commitments; mills generally expect carryovers into January on popular size alloy, cold-finished and hot-rolled. **Detroit:** demand still strong but pressure from automotive has eased a trifle temporarily due to model change shutdowns. No permanent easing of situation is seen.

Purchasing Agent's Checklist:

MACHINES: What's happening on the farm . . . . . p. 19

TARIFFS: U. S. will act on many commodities . . . . . p. 23

AUTOS: How Cadillac stays on top of its field . . . . . p. 36

STEEL: Western Steel Push Due p. 45

PLATES . . . **Pittsburgh:** despite severe cuts of customers' allotments during last several months, deliveries will be no better by year's end, probably will be worse; at minimum, all tonnages to flood areas will be added to carryovers into 1956, already at least eight weeks. **Chicago:** deliveries running up to two months behind mill promises. **Detroit:** still out of the question; if all orders offered were taken, business would be enough to keep plate mills rolling through June.

STRUCTURALS . . . **Pittsburgh:** although finishing facilities have operated at capacity for most of the year, delivery schedules have continued to lengthen; any maintenance losses or diversions to flood areas will continue to stretch delivery dates. **Chicago:** wide-flange and standard structurals continue tight. Inland Steel Co. is pushing completion of its new 24-in. wide-flange mill and already has made some dry runs. **West Coast:** mills are booked through balance of year; demand from heavy construction is increasing.

PIPE AND TUBING . . . **Pittsburgh:** oil country seamless will carry at least a 60-day backlog into 1956; mechanical tubing about 30 days; welded pipe will possibly be current. **Chicago:** seamless continues tight, and demand is firm; mill deliveries running average of two weeks behind schedules; buttweld still somewhat easier; electricweld running into late December and spilling over into January; oil country goods about three months behind delivery promises.

WIRE PRODUCTS . . . **Pittsburgh:** manufacturers' wire will hold at capacity through 1955; construction wire demand strong, but production gradually catching up with backlogs; merchant wire continues weak. **Chicago:** farm demand for barbed wire and fence posts is picking up; spring wire demand continues strong, with commitments into latter part of fourth quarter. **Detroit:** spring wire and other manufacturers' wire still in strong demand; slight pickup noted in merchant wire.

WAREHOUSE . . . **Pittsburgh:** customers being turned away; mill deliveries are erratic; most customer orders waiting on mill deliveries. **West Coast:** growing supply headaches; warehousemen look for rough time through 1955 and well into the new year. **Detroit:** looks like October will be best month of the year.

Comparison of Prices

(Effective Sept. 27, 1955)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	Sept. 27 1955	Sept. 20 1955	Aug. 30 1955	Sept. 28 1954
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.325¢	4.325¢	4.325¢	4.05¢
Cold-rolled sheets	5.325	5.325	5.325	4.95
Galvanized sheets (10 ga.)	5.85	5.85	5.85	5.45
Hot-rolled strip	4.325	4.325	4.325	4.05
Cold-rolled strip	6.29	6.29	6.29	5.82
Plate	4.52	4.52	4.52	4.237
Plates wrought iron	9.30	9.30	9.30	9.30
Stain'l's C-R strip (No. 302)	44.50	44.50	44.50	41.50
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$9.05	$9.05	$9.05	$8.95
Tinplate, electro (0.50 lb.)	7.75	7.75	7.75	7.65
Special coated mfg. ternes	7.85	7.85	7.85	7.75
Bars and Shapes: (per pound)				
Merchant bars	4.65¢	4.65¢	4.65¢	4.312¢
Cold finished bars	5.90	5.90	5.90	5.40
Alloy bars	5.65	5.65	5.65	5.075
Structural shapes	4.60	4.60	4.60	4.25
Stainless bars (No. 302)	38.25	38.25	38.25	35.50
Wrought iron bars	10.40	10.40	10.40	10.40
Wire: (per pound)				
Bright wire	6.25¢	6.25¢	6.25¢	5.75¢
Rails: (per 100 lb.)				
Heavy rails	$4.725	$4.725	$4.725	$4.45
Light rails	5.65	5.65	5.65	5.35
Semifinish Steel: (per net ton)				
Rerolling billets	$68.50	$68.50	$68.50	$64.00
Slabs, rerolling	68.50	68.50	68.50	64.00
Forging billets	84.50	84.50	84.50	78.00
Alloy blooms, billets, slabs	96.00	96.00	96.00	86.00
Wire Rod and Skelp: (per pound)				
Wire rods	5.025¢	5.025¢	5.025¢	4.675¢
Skelp	4.225	4.225	4.225	3.90
Finished Steel Composite: (per pound)				
Base price	5.174¢	5.174¢	5.174¢	4.801¢

	Sept. 27 1955	Sept. 20 1955	Aug. 30 1955	Sept. 28 1954
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$63.69	$63.69	$63.69	$61.19
Foundry, Valley	59.00	59.00	59.00	56.50
Foundry, Southern, Cin'ti	62.93	62.93	62.93	60.43
Foundry, Birmingham	55.00	55.00	55.00	52.88
Foundry, Chicago	59.00	59.00	59.00	56.50
Basic, del'd Philadelphia	62.77	62.77	62.77	60.27
Basic, Valley furnace	58.50	58.50	58.50	56.00
Malleable, Chicago	59.00	59.00	59.00	56.50
Malleable, Valley	59.00	59.00	59.00	56.50
Ferromanganese‡, cents per lb.	9.50¢	9.50¢	9.50¢	9.50¢
‡ 74-76 pct Mn base.				
Pig Iron Composite: (per gross ton)				
Pig iron	$59.00	$59.00	$59.00	$56.59
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$44.50	$44.50	$44.50	$31.50
No. 1 steel, Phila. area	46.50	46.50	46.50	28.50
No. 1 steel, Chicago	43.50	41.50	40.50	30.50
No. 1 bundles, Detroit	39.00	39.00	38.50	26.50
Low phos., Youngstown	47.50	47.50	47.50	32.50
No. 1 mach'y cast, Pittsburgh	46.50	46.50	45.50	42.50
No. 1 mach'y cast, Philadel'a.	47.50	47.50	46.50	41.00
No. 1 mach'y cast, Chicago	53.50	52.50	52.50	42.50
Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	$44.83	$44.17	$43.83	$30.17
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$13.25	$13.25	$13.25	$14.38
Foundry coke, prompt	16.25	16.25	16.25	16.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	43.00	43.00	43.00	30.00
Copper, Lake, Conn.	43.00	43.00	40.00	30.00
Tin, Straits, New York	96.75	97.00	95.625	93.25
Zinc, East St. Louis	13.00	13.00	12.50	11.50
Lead, St. Louis	15.30	14.80	14.80	14.55
Aluminum, virgin ingot	24.40	24.40	24.40	22.20
Nickel, electrolytic	64.50	64.50	64.50	63.03
Magnesium, ingot	33.25	33.25	33.25	27.75
Antimony, Laredo, Tex.	33.00	33.00	33.00	28.50
† Tentative. ‡ Average. * Revised.				

Finished Steel Composite
Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite
Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite
Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

←To identify producers, see Key on P. 115→

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Bethlehem *B3*	60.50	61.00	61.50	62.00	.....
Birdsboro, Pa. *B6*	60.50	61.00	61.50	62.00	.....
Birmingham *R3*	54.50	55.00	.....	.....	.....
Birmingham *W9*	54.50	55.00	59.00	.....	.....
Birmingham *U4*	54.50	55.00	59.00	.....	.....
Buffalo *R3*	58.50	59.00	59.50	.....	.....
Buffalo *H1*	58.50	59.00	59.50	.....	.....
Buffalo *W6*	58.50	59.00	59.50	60.00	.....
Chester *C17*	54.50	55.00	55.50	.....	.....
Chicago *I4*	58.50	59.00	59.00	59.50	.....
Cleveland *A5*	58.50	59.00	59.00	59.50	63.50
Cleveland *R3*	58.50	59.00	59.00	.....	.....
Daingerfield *L3*	55.00	55.00	55.00	.....	.....
Duluth *I4*	58.50	59.00	59.00	59.50	.....
Erie *I4*	58.50	59.00	59.00	59.50	.....
Everett *M6*	.....	61.00	61.50	.....	.....
Fontana *K1*	64.50	65.00	.....	.....	.....
Geneva, Utah *C7*	58.50	59.00	.....	.....	.....
Granite City *G2*	60.40	60.90	61.40	.....	.....
Hubbard *Y1*	.....	.....	59.00	.....	.....
Lone Star *L3*	.....	55.00	.....	.....	.....
Minnequa *C6*	60.50	61.00	61.50	.....	.....
Monessen *P6*	58.50	.....	.....	.....	.....
Neville Is. *P4*	58.50	59.00	59.00	.....	.....
N. Tonawanda *T1*	.....	59.00	59.50	.....	.....
Pittsburgh *U1*	58.50	.....	.....	59.50	.....
Sharpsville *S3*	58.50	59.00	59.00	59.50	.....
So. Chicago *R3*	58.50	.....	59.00	.....	.....
Steelton *B3*	60.50	61.00	61.50	62.00	66.50
Sweedeland *A2*	60.50	61.00	61.50	62.00	.....
Toledo *I4*	58.50	59.00	59.00	59.50	.....
Troy, N. Y. *R3*	60.50	61.00	61.50	62.00	66.50
Youngstown *Y1*	.....	.....	59.00	59.50	.....

DIFFERENTIALS: Add, 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.50 pct manganese over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional, 0.25 pct nickel.

Silvery Iron: Buffalo, *H1*, $68.75; Jackson, *J1*, *G1*, $67.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. Add 75¢ for each 0.50 pct manganese over 1.0 pct. Bessemer ferrosilicon prices are $1 over comparable silvery iron.

STAINLESS STEEL

Base price cents per lb. f.o.b. mill

Product	301	302	303	304	316	321	348	410	416	430
Ingots, rerolling	17.75	19.00	—	20.25	31.50	25.00	33.75	15.00	—	15.25
Slabs, billets, rerolling	22.25	24.75	26.75	26.00	40.25	32.00	43.00	19.50	—	19.75
Forg. discs, die blocks, rings	—	—	—	—	—	—	—	—	—	—
Billets, forging	31.75	32.00	34.75	33.75	51.25	38.25	51.00	25.50	26.00	26.00
Bars, wires, structurals	38.00	38.25	41.00	40.25	60.75	45.25	60.00	30.50	31.00	31.00
Plates	40.00	40.25	42.75	43.00	64.00	49.25	64.75	31.75	33.00	32.25
Sheets	44.25	44.50	—	47.25	68.25	54.25	73.50	36.25	—	36.75
Strip, hot-rolled	32.00	34.50	—	37.25	58.25	44.25	50.75	—	—	—
Strip, cold-rolled	41.00	44.50	—	47.25	68.25	54.25	73.50	36.25	—	36.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7*; McKeesport, Pa., *U1*; Washington, Pa., *W2*, *J2*; Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3*; Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *I2*; Ft. Wayne, *J4*; Philadelphia, *D5*.

Strip: Midland, Pa., *C11*; Cleveland, *A5*; Carnegie, Pa., *S9*; McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa., *W2*; W. Leechburg, Pa., *A3*; Bridgeville, Pa., *U2*; Detroit, *M2*; Canton-Massillon, O., *R3*; Middletown, O., *A7*; Harrison, N. J., *D3*; Youngstown, *C5*; Sharon, Pa., *S1*; Butler, Pa., *A7*; Wallingford, Conn., *U3* (.25¢ per lb higher); *W1* (.25¢ per lb higher); New Bedford, Mass., *R6*.

Bar: Baltimore, *A7*; Duquesne, Pa., *U1*; Munhall, Pa., *U1*; Reading, Pa., *C2*; Titusville, Pa., *U2*; Washington, Pa., *J2*; McKeesport, Pa., *U1*, *F1*; Bridgeville, Pa., *U2*; Dunkirk, N. Y., *A3*; Massillon, O., *R3*; Chicago, *U1*; Syracuse, N. Y., *C11*; Watervliet, N. Y., *A5*; Waukegan, *A5*; Canton, O., *T5*; Ft. Wayne, *I4*; Philadelphia, *D5*; Detroit, *R5*.

Wire: Waukegan, *A5*; Massillon, O., *R3*; McKeesport, Pa., *F1*; Ft. Wayne, *J4*; Harrison, N. J., *D3*; Baltimore, *A7*; Dunkirk, *A3*; Monessen, *P1*; Syracuse, *C11*; Bridgeville, *U2*.

Structurals: Baltimore, *A7*; Massillon, O., *R3*; Chicago, Ill., *J4*; Watervliet, N. Y., *A3*; Syracuse, *C11*.

Plates: Brackenridge, Pa., *A3*; Chicago, *U1*; Munhall, Pa., *U1*; Midland, Pa., *C11*; New Castle, Ind., *I2*; Middletown, *A7*; Washington, Pa., *J2*; Cleveland, Massillon, *R3*; Coatesville, Pa., *C15*; Philadelphia, *D5*.

Forged discs, die blocks, rings: Pittsburgh, *C11*; Syracuse, *C11*; Ferndale, Mich., *A3*; Washington, Pa., *J2*.

Forgings billets: Midland, Pa., *C11*; Baltimore, *A7*; Washington, Pa., *J2*; McKeesport, *F1*; Massillon, Canton, O., *R3*; Watervliet, *A3*; Pittsburgh, Chicago, *U1*; Syracuse, *C11*; Detroit, *R5*.

Chicago Prices Move Up Again

No. 1 heavy melting advances $2 . . . Area reports good activity, price increases for most grades . . . Prices hold in Pittsburgh and East . . . Composite up 66¢.

◆ CHICAGO took the play away from other scrap centers this week, showing strong activity and rising prices.

Price of No. 1 heavy melting advanced $2 in the area. Nearly all other grades shared in the show of strength, with increases up to $3.

Elsewhere the market continued on the quiet side. St. Louis reported sharp increases in railroad scrap. Blast furnace grades moved up $1 in Cleveland. But most areas reported the old prices holding.

In Pittsburgh there was no new buying of openhearth scrap. In the East, a leading mill came in for No. 1 heavy melting at the going price but activity continues to lag in this area.

Eastern brokers are worried that mill buying inactivity may end a sudden scramble for scrap when inventories drop. They fear a shortage and a wave of rising prices when the winter months cut supplies. In any case they feel the market is strong and that any price movement will be upward.

On the basis of Chicago strength, THE IRON AGE Composite for No. 1 heavy melting rose 66¢ to $44.83.

Pittsburgh . . . Inactivity continues to characterize the market. Not a sign of a transaction for openhearth steel grades and the mills are still out of the market. Market undertones remain strong with transactions on other grades, although small in nature, confirming current prices. There is increased feeling that mill inventories must be substantially depleted in face of continued inactivity in the scrap market and the near-capacity production pace. One consistent buyer of low phos is currently out of the market during extensive maintenance. All prices remain at current levels.

Chicago . . . The firm undertone of the broker's market which has been noticeable for the past several weeks is currently making itself felt in price advances of most grades. Movement in nearly all grades is active and indications are that prices may not as yet have reached the top of the upward spiral. Two large consumer purchases of No. 1 industrial heavy melting and No. 1 factory bundles at higher prices show a willingness on the part of some mills to go along with stronger levels in order to keep operating rates and scrap inventories high. Some selective buying in No. 2 dealer bundles at several dollars above current listings is reported.

Philadelphia . . . A leading area mill bought No. 1 heavy melting at the going price of $47. On the whole, though, the market is quiet. However brokers see no evidence of weakness. They feel mill inactivity is building up to another price scramble. Operating rates remain high and no one is accumulating inventory as winter approaches. Some activity in the No. 2 steelmaking grades was reported below the current figure but the $41 price still is being paid. Same condition exists with No. 1 heavy melting. Cast grades continue to show good strength, with out-of-town prices drawing scrap from the area.

New York . . . Entry of a major domestic consumer confirmed going price for No. 1 heavy melting as the New York market continues strong and steady. Blast furnace grades advanced $1. All other items held the old price levels.

Detroit . . . The market was still marking time this week waiting for the final closing of the October automobile lists. Indications are that prices may go up 50 cents to $1. Everyone in the market expects the local mills will be forced into buying this month. Steel producers have been eating into their inventories rather than pay the current high prices for scrap. But with the big push from the auto producers coming up, both dealers and brokers feel that the mills are going to have to come into the market regardless of price to replenish their dwindling inventories.

Cleveland . . . Underlying market optimism continued in absence of major new sales in prime grades. Wide discrepancies in No. 2 bundles which are glut on market locally was shown in two smaller sales in Valley at $42 and $36. Over-market price was from specified yards only for electric furnace use. On under-market distress sale, difficulty is expected in covering orders. Another Valley purchase of No. 2 heavy melting at $41 confirmed existing prices. A Cleveland mill is winding up intermittent shipments of scrap to nearby branch mills. Blast furnace grades went up $1 in Cleveland on basis of smaller sales to local and fringe mills.

Birmingham . . . Some brokers in the district are reported to have overbought No. 2 bundles and are holding up shipments, but movement of No. 2 steel is continuing at prevailing prices, with consumers apparently getting all they want.

St. Louis . . . Foundries in the St. Louis industrial district are extremely busy and competition between them and steel mills for scrap iron grades has resulted in sharp increases in prices bid for railroad lists. No. 1 bundles are $5 a ton higher as local consumers move to meet Chicago competition.

Cincinnati . . . Market is expected to rise in next few weeks with end-of-month industrial lists expected to go for slightly over this month. No major new sales last week but Indiana and Michigan scrap is filtering into local market.

Buffalo . . . The market held generally firm despite lack of new business. Indications are that no major purchases will materialize until mid-October. Meanwhile, prices held unchanged.

Boston . . . Prices are holding in a quiet Boston market. Eastern Pennsylvania and Pittsburgh mills continue to hold off new buying.

West Coast . . . Mills are worried they won't get enough scrap to make their melt. Despite recent price rise, mills aren't able to pull enough away from exporters.

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Scrap Prices *(Effective Sept. 27, 1955)*

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	41.00 to 42.00
No. 1 bundles	44.00 to 45.00
No. 2 bundles	36.00 to 37.00
Machine shop turn.	29.00 to 30.00
Mixed bor. and ms. turns.	29.00 to 30.00
Shoveling turnings	32.00 to 33.00
Cast iron borings	32.00 to 33.00
Low phos. punch'gs, plate	48.00 to 49.00
Heavy turnings	42.00 to 43.00
No. 1 RR. hvy. melting	47.00 to 48.00
Scrap rails, random lgth.	50.50 to 51.50
Rails 2 ft and under	54.00 to 55.00
RR. steel wheels	52.50 to 53.50
RR. spring steel	52.50 to 53.50
RR. couplers and knuckles	52.50 to 53.50
No. 1 machinery cast.	46.00 to 47.00
Cupola cast.	41.00 to 42.00
Heavy breakable cast.	38.00 to 39.00

Chicago

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 factory bundles	46.00 to 47.00
No. 1 dealers' bundles	43.00 to 44.00
No. 2 dealers' bundles	33.00 to 34.00
Machine shop turn.	29.00 to 30.00
Mixed bor. and turn.	29.00 to 30.00
Shoveling turnings	30.00 to 31.00
Cast iron borings	30.00 to 31.00
Low phos. forge crops	51.00 to 52.00
Low phos. punch'gs, plate	50.00 to 51.00
Low phos. 3 ft and under	48.00 to 49.00
No. 1 RR. hvy. melting	49.00 to 50.00
Scrap rails, random lgth.	54.00 to 55.00
Rerolling rails	65.00 to 66.00
Rails 2 ft and under	61.00 to 62.00
Locomotive tires, cut	51.00 to 52.00
Cut bolsters & side frames	53.00 to 54.00
Angles and splice bars	57.00 to 58.00
RR. steel car axles	54.00 to 55.00
RR. couplers and knuckles	50.00 to 51.00
No. 1 machinery cast.	53.00 to 54.00
Cupola cast.	47.00 to 48.00
Heavy breakable cast.	41.00 to 42.00
Cast iron brake shoes	39.00 to 40.00
Cast iron car wheels	47.00 to 48.00
Malleable	56.00 to 57.00
Stove plate	40.00 to 41.00

Philadelphia Area

No. 1 hvy. melting	$46.00 to $47.00
No. 2 hvy. melting	39.00 to 41.00
No. 1 bundles	46.00 to 47.00
No. 2 bundles	38.00 to 39.00
Machine shop turn.	27.50 to 28.50
Mixed bor. short turn.	27.50 to 28.50
Cast iron borings	27.50 to 28.50
Shoveling turnings	30.00 to 31.00
Clean cast chem. borings	27.00 to 28.00
Low phos. 5 ft and under	48.00 to 49.00
Low phos. 3 ft and under	49.00 to 50.00
Low phos. punch'gs	49.00 to 50.00
Elec. furnace bundles	47.00 to 48.00
Heavy turnings	42.00 to 43.00
RR. steel wheels	50.00 to 51.00
RR. spring steel	50.00 to 51.00
Rails 18 in. and under	57.00 to 58.00
Cupola cast.	38.00 to 40.00
Heavy breakable cast.	45.00 to 46.00
Cast iron car wheels	51.00 to 52.00
Malleable	57.00 to 58.00
Unstripped motor blocks	29.00 to 31.00
No. 1 machinery cast.	47.00 to 48.00

Cleveland

No. 1 hvy. melting	$43.50 to $44.50
No. 2 hvy. melting	38.00 to 39.00
No. 1 bundles	43.50 to 44.50
No. 2 bundles	35.00 to 36.00
No. 1 busheling	43.50 to 44.50
Machine shop turn.	34.50 to 35.50
Mixed bor. and turn.	27.50 to 29.50
Shoveling turnings	27.50 to 29.50
Cast iron borings	27.50 to 28.50
Cut struct'r'l & plates, 2 ft & under	48.00 to 49.00
Drop forge flashings	43.00 to 44.00
Low phos. punch'gs, plate	44.00 to 45.00
Foundry steel, 2 ft & under	47.00 to 48.00
No. 1 RR. heavy melting	47.00 to 48.00
Rails 2 ft and under	56.00 to 57.00
Rails 18 in. and under	57.00 to 58.00
Railroad grate bars	36.00 to 37.00
Steel axle turnings	29.00 to 30.00
Railroad cast.	49.00 to 50.00
No. 1 machinery cast.	49.00 to 50.00
Stove plate	45.00 to 46.00
Malleable	51.00 to 52.00

Youngstown

No. 1 hvy. melting	$46.00 to $47.00
No. 2 hvy. melting	41.00 to 42.00
No. 1 bundles	46.00 to 47.00
No. 2 bundles	39.00 to 40.00
Machine shop turn.	24.00 to 25.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Low phos. plate	47.00 to 48.00

Buffalo

No. 1 hvy. melting	$39.00 to $40.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 busheling	39.00 to 40.00
No. 1 bundles	39.00 to 40.00
No. 2 bundles	32.00 to 33.00
Machine shop turn.	27.00 to 28.00
Mixed bor. and turn.	28.00 to 29.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Low phos. plate	45.00 to 46.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	52.00 to 53.00
RR. steel wheels	48.00 to 49.00
RR. spring steel	48.00 to 49.00
RR. couplers and knuckles	48.00 to 49.00
No. 1 machinery cast.	43.00 to 44.00
No. 1 cupola cast.	40.00 to 41.00

Detroit

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$38.50 to $39.50
No. 2 hvy. melting	31.00 to 32.00
No. 1 bundles, openhearth	38.50 to 39.50
No. 2 bundles	27.00 to 28.00
New busheling	38.50 to 39.50
Drop forge flashings	38.00 to 39.00
Machine shop turn.	21.00 to 22.00
Mixed bor. and turn.	24.00 to 25.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Low phos. punch'gs, plate	38.50 to 39.50
No. 1 cupola cast.	40.00 to 41.00
Heavy breakable cast.	34.00 to 35.00
Stove plate	35.00 to 36.00
Automotive cast.	43.00 to 44.00

St. Louis

No. 1 hvy. melting	$36.50 to $37.50
No. 2 hvy. melting	34.00 to 35.00
No. 1 bundles	39.00 to 40.00
No. 2 bundles	29.50 to 30.50
Machine shop turn.	25.00 to 26.00
Cast iron borings	27.00 to 28.00
Shoveling turnings	27.00 to 28.00
No. 1 RR. hvy. melting	46.00 to 47.00
Rails, random lengths	52.00 to 53.00
Rails, 18 in. and under	59.00 to 60.00
Locomotive tires uncut	59.00 to 60.00
Angles and splice bars	50.00 to 51.00
Std. steel car axles	49.00 to 50.00
RR. specialties	50.00 to 51.00
Cupola cast.	46.00 to 47.00
Heavy breakable cast.	35.00 to 36.00
Cast iron brake shoes	37.00 to 38.00
Stove plate	38.00 to 39.00
Cast iron car wheels	47.00 to 48.00
Malleable	47.00 to 48.00
Unstripped motor blocks	38.50 to 39.50

Boston

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$35.00 to $36.00
No. 2 hvy. melting	28.00 to 29.00
No. 1 bundles	35.00 to 36.00
No. 2 bundles	25.50 to 26.50
No. 1 busheling	35.00 to 36.00
Elec. furnace, 2 ft & under	36.00 to 37.00
Machine shop turn.	17.50 to 18.50
Mixed bor. and short turn.	20.00 to 21.00
Shoveling turnings	21.00 to 22.00
Clean cast chem. borings	18.00 to 19.00
No. 1 machinery cast.	31.00 to 32.00
Mixed cupola cast.	29.00 to 30.00
Heavy breakable cast.	31.00 to 32.00
Stove plate	28.00 to 29.00
Unstripped motor blocks	17.00 to 18.00

New York

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$40.50 to $41.50
No. 2 hvy. melting	35.00 to 36.00
No. 2 bundles	32.00 to 33.00
Machine shop turn.	19.00 to 20.00
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	22.00 to 23.00
Clean cast chem. borings	24.00 to 25.00
No. 1 machinery cast.	37.00 to 38.00
Mixed yard cast.	33.00 to 34.00
Charging box cast.	37.00 to 38.00
Heavy breakable cast.	37.00 to 38.00
Unstripped motor blocks	24.00 to 25.00

Birmingham

No. 1 hvy. melting	$36.00 to $37.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 bundles	36.00 to 37.00
No. 2 bundles	28.00 to 29.00
No. 1 busheling	36.00 to 37.00
Machine shop turn.	23.00 to 24.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	17.00 to 18.00
Electric furnace bundles	37.00 to 38.00
Bar crops and plate	42.00 to 43.00
Structural and plate, 2 ft	41.00 to 42.00
No. 1 RR. hvy. melting	42.00 to 43.00
Scrap rails, random lgth.	50.00 to 51.00
Rails, 18 in. and under	56.00 to 57.00
Angles & splice bars	50.00 to 51.00
Rerolling rails	53.00 to 54.00
No. 1 cupola cast.	47.50 to 48.50
Stove plate	44.50 to 45.50
Charging box cast.	28.00 to 29.00
Cast iron car wheels	38.00 to 39.00
Unstripped motor blocks	36.00 to 37.00
Mashed tin cans	15.00 to 16.00

Cincinnati

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$40.50 to $41.50
No. 2 hvy. melting	34.00 to 35.00
No. 1 bundles	40.50 to 41.50
No. 2 bundles	32.00 to 33.00
Machine shop turn.	27.00 to 28.00
Mixed bor. and turn.	23.00 to 24.00
Shoveling turnings	31.00 to 32.00
Cast iron borings	23.00 to 24.00
Low phos., 18 in. & under	47.00 to 48.00
Rails, random lengths	49.00 to 50.00
Rails, 18 in. and under	57.00 to 58.00
No. 1 cupola cast.	44.00 to 45.00
Hvy. breakable cast.	38.00 to 39.00
Drop broken cast.	49.00 to 50.00

San Francisco

No. 1 hvy. melting	$34.00
No. 2 hvy. melting	32.00
No. 1 bundles	34.00
No. 2 bundles	29.00
No. 3 bundles	25.00
Machine shop turn.	12.00
Cast iron borings	11.00
No. 1 RR. hvy. melting	34.00
No. 1 cupola cast.	42.00

Los Angeles

No. 1 hvy. melting	$33.00
No. 2 hvy. melting	31.00
No. 1 bundles	33.00
No. 2 bundles	28.00
No. 3 bundles	24.00
Machine shop turn.	12.00
Shoveling turnings	16.00
Cast iron borings	12.00
Elec. furn. 1 ft and under	33.00
No. 1 RR. hvy. melting	33.00
No. 1 cupola cast.	42.00

Seattle

No. 1 hvy. melting	$35.50
No. 2 hvy. melting	31.50
No. 2 bundles	25.50
No. 3 bundles	21.50
No. 1 cupola cast.	35.00
Mixed yard cast.	35.00

Hamilton, Ont.

No. 1 hvy. melting	$38.50
No. 2 hvy. melting	35.50
No. 1 bundles	38.50
No. 2 bundles	32.50
Mixed steel scrap	32.50
Bushelings	33.50
Bush., new fact. prep'd	36.50
Bush., new fact. unprep'd	32.50
Machine shop turn.	16.00
Short steel turn.	25.50
Mixed bor. and turn.	$16.00 to 17.00
Rails, rerolling	47.50
Cast scrap	42.00 to 45.00

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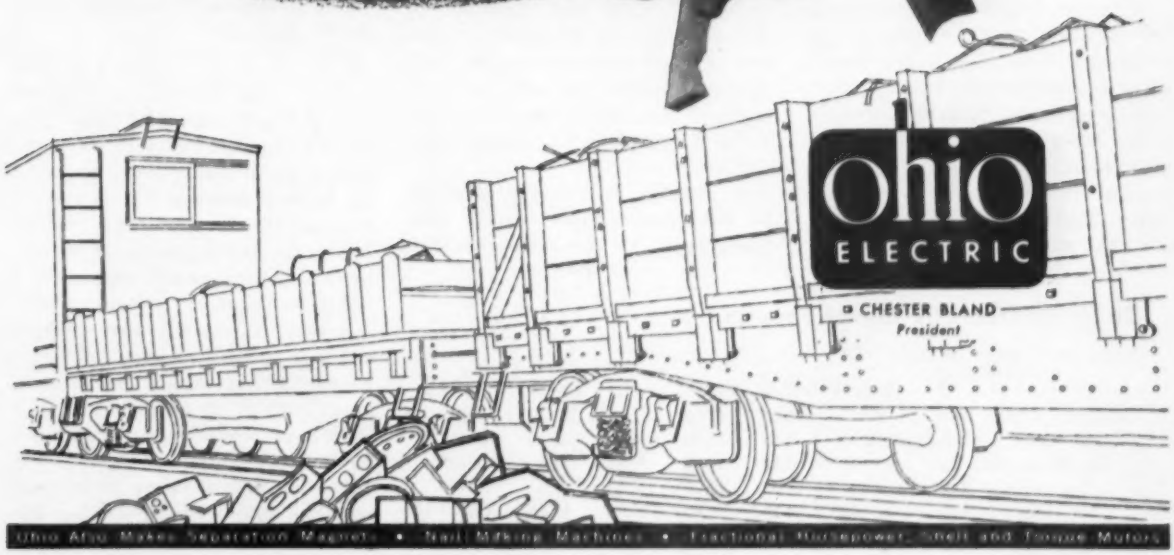

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Government Action On Copper

Food-for-copper unworkable but tariff slash may do the trick . . . Higher Canadian mine production may offer future relief.

◆ A POTENTIAL solution to the problem of swaying the Chilean Government to ignore the price differential between Europe and the U. S. for copper was suggested by Representative James T. Patterson (Rep., Conn.). Congressman Patterson suggests that this country initiate a barter program—our surplus food gathered via the farm subsidy, for Chilean copper. The negotiation and exchange would of course be at the Government level.

On the surface it sounds like a good idea, and it is. But it won't work. Chile could use the food—but she needs maximum proceeds from her copper even more.

Chile is in the throes of a spiraling economy. Both prices and wages are up. There is no middle class and the majority of the people are workers in the poor class. They don't understand the complexities or the potential disaster involved in an inflation. They only know that their paychecks are bigger than they have ever been.

Without doubt food-for-copper would stabilize the situation in Chile and help relieve the strangling market in this country. But the upper class now in power in Chile does not want the task of explaining the advantages of smaller paychecks in relation to lower prices. They are in the driver's seat and want to stay there—therefore don't count on food-for-copper to click in Chile.

Probably the best move by the Government to date aimed at taking the pressure off the copper market was the announcement that the U. S. would offer tariff reductions on copper as well as other critical metals at international trade talks set for Geneva in January.

Beginning Oct. 31 the domestic producers will be given a chance to present objections, and the importers to give their ideas in a debate aimed at setting the peril point—maximum extent to which the U. S. Tariff Commission will recommend the tariff be slashed. The public will be permitted to appear in person or to send written opinions provided application is made by Oct. 17. In effect the peril point that will be arrived at is not binding because the President can exceed it by merely explaining his reason for doing so to Congress.

In this case no objections are expected from any quarter. It seems likely that the tariff on copper ore and concentrates as well as rods, sheets and rolls, will be reduced the maximum 5 pct—a definite incentive to foreign producers.

A possible long range solution to the short copper supply was highlighted by the announcement that Canadian mines have increased their 1955 production by 13 pct. The bulk of this increased production was accounted for by the established organizations. The significant fact is, however, that four new groups entered the field this year with several more right on the brink. In the near future when these groups are settled and operating at capacity the prospect is bright.

It is common knowledge that the major American producers having trouble at their Latin American properties have been exploring the possibilities in Canada for some time. Should engineers and geologists report favorably it could well be that the expected production of 350,000 tons in 1955 would double within a decade. Because of old ties Great Britain would get quite a chunk, but enough to loosen the market would find its way across the border.

Aluminum . . . Under the gavel of Representative Sidney Yates (Dem., Ill.) a House Small Business subcommittee on minerals and raw materials has opened hearings on aluminum distribution to non-integrated producers in the third and fourth quarters. Invited to testify are officials from the Office of Defense Mobilization, General Services Administration, and the Commerce Department's Business and Defense Services Administration. Just what the committee intends to do is not quite clear since 100,000 tons were released from the national stockpile in the third quarter, with 75,000 tons set to be diverted to industry in the fourth quarter.

Tin . . . The price of tin, which has been relatively stable for some time, started a gradual incline up with news that a strike notice had been issued by Eastern Smelting Co. workers in Malaya. If settlement is not reached in this, the world's largest tin smelter, by Oct. 4, 400 men will walk out and the price incline will become a mountain peak. All previous meetings have ended in a deadlock, and right now it's anybody's guess what will happen. Most likely is an eleventh hour settlement or possibly a strike of short duration. The new government realizes the value of tin to the national economy and is really pushing for continued full production.

Daily Nonferrous Metal Prices

(Cents per lb except as noted)

	Sept. 21	Sept. 22	Sept. 23	Sept. 24	Sept. 26	Sept. 27
Copper, electro, Conn.	43.00	43.00	43.00	....	43.00	43.00
Copper, Lake, delivered	43.00	43.00	43.00	....	43.00	43.00
Tin, Straits, New York	97.25	97.375	97.25	97.25	96.625	96.75*
Zinc, East St. Louis	13.00	13.00	13.00	13.00	13.00	13.00
Lead, St. Louis	14.80	14.80	15.30	15.30	15.30	15.30

Note: Quotations are going prices **Tentative*

Nonferrous Prices *(Effective Sept. 27, 1955)*

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt., frt. allowed)

Flat Sheet (Mill Finish) and Plate

("F" temper except 6061-0)

Alloy	.032	.081	.136–.249	.250–3.
1100, 3003	40.8	38.7	37.5	36.5
5052	48.3	43.4	41.7	39.9
6061-0	45.4	41.2	39.4	39.3

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6–8	41.6–43.3	56.6–60.2
12–14	42.3–43.7	57.5–61.8
24–26	45.3–45.7	67.7–72.1
36–38	53.6–54.2	90.5–94.3

Screw Machine Stock—2011-T-3

Size"	¼	⅜–⅝	¾–1	1¼–1½
Price	54.5	53.4	52.1	50.1

Roofing Sheet, Corrugated

(Per sheet, 26" wide, base, 16,000 lb)

Length "l ▶	72	96	120	144
.019 gage	$1.295	$1.727	$2.160	$2.590
.024 gage	1.615	2.162	2.692	3.232

Magnesium

(F.o.b. mill, freight allowed)

Sheet & Plate: FS1-O ¼ in., 61¢; 3/16 in., 62¢; ½ in., 61¢; 0.064 in., 78¢; 0.032 in., 99¢. Specification grade higher. Base, 30,000 lb.

Extruded Round Rod: FS, diam ¼ to 0.311 in., 82.5¢; ⅜ to ¾ in., 65¢; 1¼ to 1.749 in., 60.5¢; 2½ to 5 in., 57¢. Other alloys higher. Base up to ⅝ diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes: Rectangles: FS. In weight per ft for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 70.7¢; 0.22 to 0.25 lb, 5.9 in., 66.9¢; 0.50 to 0.59 lb, 8.6 in., 63¢; 1.8 to 2.59 lb, 19.5 in., 60.8¢; 4 to 6 lb, 28 in., 57.7¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: FS, 0.049 to 0.057 in. wall thickness: OD ¼ to 5/16 in., $1.625; 5/16 to ⅝ in., $1.475; ½ to ⅝ in., $1.105; 1 to 2 in., 92.5¢; 0.165 to 0.219 in. wall: OD, ⅝ to ⅞ in., 75.5¢; 1 to 2 in., 71.5¢; 3 to 4 in., 70.5¢. Other alloys higher. Base OD: Up to 1½ in., 10,000 lb; 1½ to 3 in., 20,000 lb; over 3 in., 30,000 lb.

Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Extruded Shapes
Copper	56.79	....	58.86
Copper, h-r	58.76	55.11	....
Copper, drawn	....	56.36	....
Low brass	53.15	52.09	....
Yellow brass	49.27	49.21	....
Red brass	54.54	54.48	....
Naval brass	52.83	47.14	48.40
Leaded brass	....	....	45.74
Com. bronze	56.48	56.42	....
Mang. bronze	56.57	50.67	52.23
Phos. bronze	77.14	77.64	....
Munts metal	50.94	46.75	48.00
Ni silver, 10 pct	63.05	66.13	68.50

Beryllium copper, CR, 1.9% Be, Base 2000 lb, f.o.b.

Strip	$1.84
Rod, bar, wire	1.81

Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	102	78	99
Strip, CR	102	87	125
Rod, Bar, HR	87	69	93
Angles, HR	87	69	93
Plate, HR	97	82	95
Seamless Tube	122	108	153
Shot, Blocks	....	85	....

Titanium

(10,000 lb base, f.o.b. mill)

Sheet and strip, commercially pure, $14.00-$14.50; alloy $16.50; Plate, HR, commercially pure, $11.50-$12.00; alloy, $12.50-$12.75; Wire, rolled and/or drawn, commercially pure, $10.50-$11.00; alloy, $12.50; Bar, HR or forged, commercially pure, $8.50-$8.75; alloy, $8.50-$9.00.

PRIMARY METAL

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	24.40
Aluminum pig	22.50
Antimony, American, Laredo, Tex.	33.50
Beryllium copper, per lb conta'd Be	$40.00
Beryllium aluminum 5% Be, Dollars per lb contained Be	$72.75
Bismuth, ton lots	$2.25
Cadmium, del'd	$1.70
Cobalt, 97-99% (per lb)	$2.60 to $2.67
Copper, electro, Conn. Valley	43.00
Copper, Lake, delivered	43.00
Gold, U. S. Treas., per troy oz.	$35.00
Indium, 99.9%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$100 to $120
Lead, St. Louis	15.30
Lead, New York	15.50
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb, pig	32.50
ingot	33.25
Magnesium, sticks, 100 to 500 lb	53.00
Mercury, dollars per 76-lb flask, f.o.b. New York	$267 to $272
Nickel electro	64.50
Nickel oxide sinter, at Copper Cliff, Ont., contained nickel	60.75
Palladium, dollars per troy oz.	$22 to $24
Platinum, dollars per troy oz.	$90 to $94
Silver, New York, cents per troy oz.	90.75
Tin, New York	96.75
Titanium, sponge, grade A-1	$3.95
Zinc, East St. Louis	13.00
Zinc, New York	13.50
Zirconium, sponge	$7.50 to $10.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	42.50
No. 120	42.00
No. 123	41.50
80-10-10 ingot	
No. 305	45.75
No. 315	44.00
88-10-2 ingot	
No. 210	59.25
No. 215	55.25
No. 245	48.75
Yellow ingot	
No. 405	34.75
Manganese bronze	
No. 421	38.25

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys	
0.30 copper max.	31.25-32.50
0.60 copper max.	31.00-32.25
Piston alloys (No. 122 type)	31.00-32.25
No. 12 alum. (No. 2 grade)	30.00-31.00
108 alloy	30.00-31.00
195 alloy	31.25-33.00
13 alloy (0.60 copper max.)	31.50-32.75
AXS-679	30.00-31.00

Steel deoxidizing aluminum, notch bar granulated or shot

Grade 1—95-97½%	30.50-31.50
Grade 2—92-95%	29.50-30.50
Grade 3—90-92%	28.50-29.50
Grade 4—85-90%	28.00-29.00

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	39	38½
Yellow brass	28⅞	26⅜
Red brass	34½	33½
Comm. bronze	35¾	35
Mang. bronze	27	25⅝
Yellow brass rod ends	28⅝	

Custom Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	44½
No. 2 copper wire	43
Light copper	40½
*Refinery brass	39

* Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	44½
No. 2 copper wire	43
Light copper	40½
No. 1 composition	35½
No. 1 comp. turnings	35
Rolled brass	26
Brass pipe	26½
Radiators	28
Aluminum	
Mixed old cast	19½—20½
Mixed new clips	20½—21½
Mixed turnings, dry	19½—21

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	39½—40½
No. 2 heavy copper and wire	38½—39½
Light copper	35½—36½
New type shell cuttings	36 —37
Auto radiators (unsweated)	24 —24½
No. 1 composition	31 —32
No. 1 composition turnings	30 —31
Unlined red car boxes	24 —24½
Cocks and faucets	25½—26½
Mixed heavy yellow brass	22 —22½
Old rolled brass	23 —24
Brass pipe	26 —27
New soft brass clippings	25½—26½
No. 1 brass rod turnings	23 —23½

Aluminum

Alum. pistons and struts	17 —17½
Aluminum crankcases	17 —17½
1100 (2S) aluminum clippings	19 —19½
Old sheet and utensils	17 —17½
Borings and turnings	10½—11
Misc. cast aluminum	17 —17½
2024 (24s) clippings	18 —18½

Zinc

New zinc clippings	8 — 8½
Old zinc	5½— 6
Zinc routings	4
Old die cast scrap	3½

Nickel and Monel

Pure nickel clippings	92
Clean nickel turnings	75
Nickel anodes	92
Nickel rod ends	92
New Monel clippings	44½
Clean Monel turnings	34
Old sheet Monel	40
Nickel silver clippings, mixed	22
Nickel silver turnings, mixed	18

Lead

Soft scrap lead	11½—12
Battery plates (dry)	6½— 6¾
Batteries, acid free	4⅛

Magnesium

Segregated solids	18½—19
Castings	17½—18

Miscellaneous

Block tin	80 —81
No. 1 pewter	64
Auto babbitt	42 —43
Mixed common babbitt	14⅛
Solder joints	17½—20
Siphon tops	43
Small foundry type	16⅝
Monotype	15
Lino. and stereotype	14 —14½
Electrotype	12 —12½
Hand picked type shells	10⅜
Lino. and stereo. dross	5⅛
Electro dross	5

IRON AGE

STEEL PRICES

(Effective Sept. 27, 1955)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PILING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$96.00 *B3*		4.65 *B3*	6.00 *B3*	4.65 *B3*						
	Buffalo, N. Y.	$68.50 *B3*	$84.50 *R3, B3*	$96.00 *R3, B3*	5.45 *B3*	4.65 *B3*	6.00 *B3*	4.65 *B3*	4.325 *R3,B3*	6.25 *B3* 6.25 *R7,S10*	6.425 *B3*	9.10 *B3*		
	Claymont, Del.													
	Harrison, N. J.													13.45 *C11*
	Conshohocken, Pa.								4.375 *A2*	6.30 *A2*	6.425 *A2*			
	New Bedford, Mass.									6.70 *R6*				
	Johnstown, Pa.	$68.50 *B3*	$84.50 *B3*	$96.00 *B3*		4.65 *B3*	6.00 *B3*							
	Boston, Mass.									6.80 *T8*				13.80 *T8*
	New Haven, Conn.									6.70 *D1* 7.00 *A5*				
	Phoenixville, Pa.					5.15 *P2*		5.15 *P2*						
	Sparrows Pt., Md.								4.325 *B3*	6.25 *B3*	6.425 *B3*	9.10 *B3*		
	Bridgeport, Wallingford, Conn.	$73.50 *N8*	$89.50 *N8*						4.625 *N8*	6.70 *W1*			7.50 *N8*	
	Pawtucket, R. I. Worcester, Mass.									6.80 *N7* 7.10 *A5*				*A5* 13.80 *N7*
MIDDLE WEST	Alton, Ill.								4.50 *L1*					
	Ashland, Ky.								4.325 *A7*					
	Canton-Massillon, Dover, Ohio		$86.50 *R3*	$96.00 *R3*										13.45 *G4*
	Chicago, Ill.	$68.50 *U1*	$84.50 *R3, U1,W8*	$96.00 *R3, U1,W8*	5.45 *U1*	4.60 *U1, W8*	6.75 *U1, Y1*	4.60 *U1*	4.325 *A1, N4,W8*	6.35 *A1,T8*			7.20 *W8*	13.45 *T8*
	Cleveland, Ohio									6.25 *A5,J3*		9.30 *A5*		13.45 *A5*
	Detroit, Mich.			$96.00 *R3*					4.425 *G3,M2*	6.35 *D1,D2, G3,M2,P11*	6.525 *G3*	9.20 *D2, G3*		
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	$68.50 *U1*	$84.50 *U1*	$96.00 *U1, Y1*	5.45 *I3*	4.60 *U1, I3*	6.75 *U1, I3*		4.325 *I3, U1,Y1*	6.35 *I3* 6.25 *Y1*	6.425 *I3, U1,Y1*	9.30 *Y1*	7.20 *Y1, U1*	
	Sterling, Ill.								4.425 *N4*					
	Indianapolis, Ind.									6.40 *C5*				
	Newport, Ky.												7.20 *N5*	
	Middletown, Ohio									6.45 *A7*				
	Niles, Warren, Ohio Sharon, Pa.	$68.50 *C10*	$84.50 *C10*	$96.00 *C10*					4.325 *S1, R3*	6.25 *S1, R3,T4*	6.425 *S1, R3*	9.10 *S1, R3*	7.20 *S1*	13.45 *S1*
	Pittsburgh, Pa. Midland, Pa. Butler, Pa.	$68.50 *U1, J3*	$84.50 *J3, U1,C11*	$96.00 *U1, C11*	5.45 *U1*	4.60 *U1, J3*	6.75 *U1, J3*	4.60 *U1*	4.325 *P6*	6.25 *S7,B4*			7.20 *S9*	13.45 *S9*
	Portsmouth, Ohio								4.325 *P7*	6.25 *P7*				
	Weirton, Wheeling, Follansbee, W. Va.					4.60 *W3*			4.325 *W3*	6.25 *F3,W3*	6.425 *W3*	9.10 *W3*		
	Youngstown, Ohio		$84.50 *C10*	$96.00 *Y1, C10*		4.60 *Y1*	6.75 *Y1*		4.325 *U1, Y1*	6.25 *Y1,C5*	6.425 *U1, Y1*	9.30 *Y1*	7.20 *U1, Y1*	13.45 *C5*
WEST	Fontana, Cal.	$76.00 *K1*	$92.00 *K1*	$115.00 *K1*		5.25 *K1*	7.40 *K1*	5.40 *K1*	5.075 *K1*	8.00 *K1*	7.525 *K1*		8.85 *K1*	
	Geneva, Utah		$84.50 *C7*			4.60 *C7*	6.75 *C7*							
	Kansas City, Mo.					4.70 *S2*	6.85 *S2*				6.675 *S2*		7.45 *S2*	
	Los Angeles, Torrance, Cal.		$94.00 *B2*	$116.00 *B2*		5.30 *C7, B2*	7.45 *B2*		5.075 *C7, B2*	8.30 *C1*			8.40 *B2*	
	Minnequa, Colo.					4.90 *C6*			5.425 *C6*					
	Portland, Ore.					5.35 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$94.00 *B2*			5.25 *B2, F9*	7.40 *B2*		5.075 *B2, C7*					
	Seattle, Wash.		$98.00 *B2*			5.35 *B2*	7.50 *B2*		5.325 *B2*					
SOUTH	Atlanta, Ga.								4.525 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$68.50 *T2*	$94.50 *T2*			4.60 *C16, R3,T2*	6.75 *T2*		4.325 *R3, C16,T2*		6.425 *T2*			
	Houston, Lone Star, Tex.	$74.50 *L3*	$89.50 *S2*	$101.00 *S2*		4.70 *S2*	6.85 *S2*				6.675 *S2*		7.45 *S2*	

IRON AGE

STEEL PRICES

(Effective Sept. 27, 1955)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS									WIRE ROD	TINPLATE†		BLACK PLATE
		Hot-rolled *18* ga. & hvyr.	Cold-rolled	Galvanized *10* ga.	Enameling *12* ga.	Long Terne *10* ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot-rolled *19* ga.		Cokes* *1.25*-lb. base box	Electro* *0.25*-lb. base box	Hollowware Enameling *29* ga.
EAST	Bethlehem, Pa.											† Special coated mfg. terne deduct 95¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25-lb. coke base box. * COKES: 1.50-lb. add 25¢. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.10. Differential 1.00 lb./0.25 lb. add 85¢.		
	Buffalo, N. Y.	4.325 *B3*	5.325 *B3*				6.375 *B3*	7.875 *B3*			*W6*			
	Claymont, Del.													
	Conteaville, Pa.													
	Conshohocken, Pa.	4.375 *A2*	5.375 *A2*				6.425 *A2*							
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johnstown, Pa.										5.025 *B3*			
	Fairless, Pa.	4.375 *U1*	5.375 *U1*				6.425 *U1*	7.925 *U1*				$8.90 *U1*	$7.80 *U1*	
	New Haven, Conn.													
	Phoenixville, Pa.													
	Sparrows Pt., Md.	4.325 *B3*	5.325 *B3*	5.85 *B3*			6.375 *B3*	7.875 *B3*	8.60 *B3*		5.125 *B3*	$8.90 *B3*	$7.80 *B3*	
	Worcester, Mass.										5.325 *A5*			
	Trenton, N. J.													
MIDDLE WEST	Alton, Ill.										5.20 *L1*			
	Ashland, Ky.	4.325 *A7*		5.85 *A7*	5.90 *A7*									
	Canton-Massillon, Dover, Ohio			5.85 *R1, R3*										
	Chicago, Joliet, Ill.	4.325 *A1, W8*					6.375 *U1*				5.025 *A5, N4 R3*			
	Sterling, Ill.										5.125 *N4*			
	Cleveland, Ohio	4.325 *J3, R3*	5.325 *J3, R3*		5.90 *R3*		6.375 *J3, R3*	7.875 *J3, R3*			5.025 *A5*			
	Detroit, Mich.	4.425 *G3, M2*	5.425 *G3* 5.325 *M2*				6.475 *G3*	7.975 *G3*						
	Newport, Ky.	4.325 *N5*	5.325 *N5*	5.85 *N5*										
	Gary, Ind. Harbor, Indiana	4.325 *I3, U1, Y1*	5.325 *I3, U1, Y1*	5.85 *U1, I3*	5.90 *U1, I3*	6.25 *U1*	6.375 *Y1, U1, I3*	7.875 *U1, Y1*			5.025 *Y1*	$8.80 *I3, U1, Y1*	$7.50 *I3, U1, Y1*	6.65 *U1, Y1*
	Granite City, Ill.	4.525 *G2*	5.525 *G2*	6.05 *G2*	6.10 *G2*								$7.60 *G2*	6.75 *G2*
	Kokomo, Ind.	4.425 *C9*		5.95 *C9*						5.475 *C9*	5.125 *C9*			
	Mansfield, Ohio	4.325 *E2*	5.325 *E2*			6.25 *E2*				*E2*				
	Middletown, Ohio		5.325 *A7*	5.85 *A7*	5.90 *A7*	6.25 *A7*								
	Niles, Warren, Ohio Sharon, Pa.	4.325 *S1, R3, N3*	5.325 *R3, N3*	5.85 *R3* 6.85 *N3*	5.90 *N3*	6.25 *N3*	6.375 *S1, R3*	7.875 *R3*				$8.80 *R3*	$7.50 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa.	4.325 *J3, U1, P6*	5.325 *J3, U1, P6*	5.85 *U1*	5.90 *U1, A7*		6.375 *J3, U1*	7.875 *U1*	8.60 *U1*		5.025 *A5, P6*	$8.80 *J3, U1*	$7.50 *J3, U1*	6.65 *U1*
	Portsmouth, Ohio	4.325 *P7*	5.325 *P7*								5.025 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	4.325 *W3, W5*	5.325 *W3, W5, F3*	5.85 *W3, W5*		6.25 *W3, W5*	6.375 *W3*	7.875 *W3*				$8.80 *W3, W5*	$7.50 *W3, W5*	6.65 *F3, W5*
	Youngstown, Ohio	4.325 *U1, Y1*	5.325 *Y1*		5.90 *Y1*		6.375 *U1, Y1*	7.875 *Y1*			5.025 *Y1*			
WEST	Fontana, Cal.	5.075 *K1*	6.425 *K1*				7.125 *K1*	8.975 *K1*						
	Geneva, Utah	4.425 *C7*												
	Kansas City, Mo.										5.275 *S2*			
	Los Angeles, Torrance, Cal.										5.025 *B2*			
	Minnequa, Colo.										5.275 *C6*			
	San Francisco, Niles, Pittsburg, Cal.	5.025 *C7*	6.275 *C7*	6.60 *C7*							5.675 *C7*	$9.55 *C7*	$8.25 *C7*	
	Seattle, Wash.													
SOUTH	Atlanta, Ga.													
	Fairfield, Ala. Alabama City, Ala.	4.325 *R3, T2*	5.325 *T2*	5.85 *R3, T2*			6.375 *T2*			5.025 *R3*	5.025 *R3, T2*	$8.90 *T2*	$7.60 *T2*	
	Houston, Tex.										5.275 *S2*			

IRON AGE

STEEL PRICES

(Effective Sept. 27, 1965)

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		BARS						PLATES				WIRE
		Carbon Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				5.575 *B3*	7.425 *B3*	6.80 *B3*					
	Buffalo, N. Y.	4.65 *B5,R3*	4.65 *B5,R3*	5.95 *B5*	5.575 *B3,R3*	7.425 *B3,B5*	6.80 *B3*	4.50 *B3,R3*				6.25 *W6*
	Claymont, Del.							4.50 *C4*		6.30 *C4*		
	Coatesville, Pa.							4.50 *L4*		6.30 *L4*	6.725 *L4*	
	Conshohocken, Pa.							4.50 *A2*	5.575 *A2*		6.725 *A2*	
	Harrisburg, Pa.							5.10 *C3*	5.575 *C3*			
	Hartford, Conn.			6.40 *R3*		7.725 *R3*						
	Johnstown, Pa.	4.65 *B3*	4.65 *B3*		5.575 *B3*		6.80 *B3*	4.50 *B3*		6.30 *B3*	6.725 *B3*	6.25 *B3*
	Fairless, Pa.	4.80 *U1*	4.80 *U1*		5.725 *U1*							
	Newark, N. J.			6.35 *W10*		7.60 *W10*						
	Camden, N. J.			6.35 *P10*								
	Bridgeport, Putnam, Conn.	4.80 *N8*		6.45 *W10*	5.725 *N8*			4.750 *N8*				
	Sparrows Pt., Md.		4.65 *B3*					4.50 *B3*		6.30 *B3*	6.725 *B3*	6.35 *B3*
	Palmer, Worcester, Readville, Mansfield, Mass.			6.35 *W11* 6.45 *B5,C14*		7.725 *A5,B5*		4.50 *R3*				6.55 *A5, W6*
MIDDLE WEST	Alton, Ill.	4.85 *L1*										6.425 *L1*
	Ashland, Newport, Ky.							4.50 *A7,N5*		6.30 *N5*		
	Canton-Massillon, Mansfield, Ohio	4.75 *R3*		5.90 *R2,R3*	5.575 *R3,T5*	7.425 *R2,R3, T5*		4.50 *E2*				
	Chicago, Joliet, Ill.	4.65 *U1, N4,W8,R3, P13*	4.65 *N4,R3, P13*	5.90 *A5,W10, W8,B5,L2*	5.575 *U1,R3, W8*	7.425 *A5,W8, W10,L2,B5*		4.50 *U1,W8, I3,A1,R3*	5.575 *U1*	6.30 *U1*	6.725 *U1*	6.25 *A5,R3, N4,W7*
	Cleveland, Ohio	4.65 *R3*	4.65 *R3*	5.90 *A5,C13*		7.425 *A5,C13*	6.80 *R3*	4.60 *J3,R3*	5.575 *J3*		6.725 *R3,J3*	6.25 *A5, C13*
	Detroit, Mich.	4.75 *G3*	4.75 *G3*	5.95 *R3* 6.10 *B5,P8* 6.15 *P3*	5.575 *R5* 5.675 *G3*	7.425 *R5* 7.625 *B5,P3 P8*	6.90 *G3*	4.60 *G3*			6.825 *G3*	
	Duluth, Minn.											6.25 *A5*
	Gary, Ind. Harbor, Crawfordsville	4.65 *I3, U1, Y1*	4.65 *I3, U1, Y1*	5.90 *M5,R3*	5.575 *I3, U1, Y1*	7.425 *M5, R3*	6.80 *U1,I3, Y1*	4.50 *I3, U1,Y1*	5.575 *I3*	6.30 *U1,Y1*	6.725 *U1,I3, Y1*	6.35 *M4*
	Granite City, Ill.							4.70 *G2*				
	Kokomo, Ind.											6.35 *C9*
	Sterling, Ill.	4.75 *N4*	4.75 *N4*									6.35 *N4*
	Niles, Warren, Ohio Sharon, Pa.	4.65 *R3,C10*		5.90 *C10*	5.575 *C10*	7.425 *C10*	6.80 *R3*	4.50 *S1,R3*		6.30 *S1*	6.725 *S1*	
	Pittsburgh, Pa. Midland, Pa.	4.65 *J3, U1, C11*	4.65 *J3, U1*	5.90 *A5,C8, C11,J3, W10,B4,R3*	5.575 *U1,C11*	7.425 *A5,C11, W10,C8,R3*	6.80 *J3, U1*	4.50 *J3, U1*	5.575 *U1*	6.30 *U1*	6.725 *J3, U1*	6.25 *A5,J3, P6*
	Portsmouth, Ohio											6.25 *P7*
	Weirton, Wheeling, Follansbee, W. Va.	4.65 *W3*						4.50 *W3,W5*				
	Youngstown, Ohio	4.65 *U1,Y1, C10,R3*	4.65 *U1,Y1, R3*	5.90 *Y1, U1*	5.575 *U1,Y1, C10*	7.425 *Y1,C10* 7.625 *F2*	6.80 *U1,Y1*	4.50 *U1,Y1, R3*		6.30 *Y1*	6.725 *Y1*	6.25 *Y1*
WEST	Emeryville, Cal.	5.40 *J5*	5.40 *J5*									
	Fontana, Cal.	5.35 *K1*	5.35 *K1*		6.625 *K1*		7.50 *K1*	5.15 *K1*		6.95 *K1*	7.375 *K1*	
	Geneva, Utah							4.50 *C7*			6.725 *C7*	
	Kansas City, Mo.	4.90 *S2*	4.90 *S2*		5.825 *S2*		7.05 *S2*					6.50 *S2*
	Los Angeles, Torrance, Cal.	5.35 *B2,C7*	5.35 *B2,C7*	7.35 *R3*	6.625 *B2*		7.50 *B2*				7.825 *B2*	7.20 *B2*
	Minnequa, Colo.	5.10 *C6*	5.10 *C6*					5.35 *C6*				6.50 *C6*
	Portland, Ore.	5.40 *O2*	5.40 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	5.35 *C7* 5.40 *B2,P9*	5.35 *C7* 5.40 *B2,P9*				7.55 *B2*					7.20 *C7*
	Seattle, Wash.	5.40 *B2,P12, N6*	5.40 *B2,P12*				7.55 *B2*	5.40 *B2*		7.20 *B2*	7.625 *B2*	
SOUTH	Atlanta, Ga.	4.85 *A8*	4.85 *A8*									6.45 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	4.65 *T2,C16, R3*	4.65 *T2,C16, R3*				6.80 *T2*	4.50 *T2,R3*			6.725 *T2*	6.25 *R3, T2*
	Houston, Ft. Worth, Lone Star, Tex.	4.90 *S2*	4.90 *S2*		5.825 *S2*		7.05 *S2*	4.85 *L3* 4.60 *S2*		6.40 *S2*	6.825 *S2*	6.50 *S2*

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angell Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, O.
A8 Atlantic Steel Co., Atlanta, Ga.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire Spencer Steel Div., Birdsboro, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Cold Metal Products Co., Youngstown, O.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C12 Cumberland Steel Co., Cumberland, Md.
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace Inc., Chester, Pa.

D1 Detroit Steel Corp., Detroit
D2 Detroit Tube & Steel Div., Detroit
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.
D5 Henry Disston & Sons, Inc., Philadelphia

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimmons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

Globe Iron Co., Jackson, O.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp, Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.
M5 Monarch Steel Div., Hammond, Ind.
M6 Mystic Iron Works, Everett, Mass.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N5 Newport Steel Corp., Newport, Ky.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Northeastern Steel Corp., Bridgeport, Conn.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N.
P11 Production Steel Strip Corp., Detroit
P12 Pacific Steel Rolling Mills, Seattle
P13 Phoenix Mfg. Co., Joliet, Ill.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 Rotary Electric Steel Co., Detroit
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Corp., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw & Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T6 Tremont Nail Co., Wareham, Mass.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Co., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wycoff Steel Co., Pittsburgh
W11 Worcester Pressed Steel Co., Worcester, Mass.

Y1 Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $280 per net ton.

ARD T. & C.	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½–3 In.		2 In.		2½ In.		3 In.		3½–4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. *B3*	15.50	9.25	18.50	4.25	21.00	7.75	23.50	8.50	24.00	9.50	24.50	10.00	26.00	9.75								
Youngstown *R3*	17.50	9.25	20.50	4.25	23.00	7.75	25.50	9.00	26.00	10.00	26.50	10.50	28.00	10.75								
Fontana *K1*	6.00	+9.25	9.00	+5.25	11.50	+1.75	14.00	+1.00	14.50	+0.00	15.00	0.50	16.50	0.25								
Pittsburgh *J3*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75	6.50	+8.50	10.50	+6.25	13.00	+3.75	14.50	+2.25
Alton, Ill. *L1*	15.50	0.25	18.50	4.25	21.00	7.75	23.50	8.50	24.00	9.50	24.50	10.00	26.00	9.75								
Sharon *M3*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75								
Fairless *N2*	15.50	0.25	18.50	4.25	21.00	7.75	23.50	8.50	24.00	9.50	24.50	10.00	26.00	9.75								
Pittsburgh *N1*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75	6.50	+8.50	10.50	+6.25	13.00	+3.75	14.50	+2.25
Wheeling *W5*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75								
Wheatland *W4*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75								
Youngstown *Y1*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75	6.50	+8.50	10.50	+6.25	13.00	+3.75	14.50	+2.25
Indiana Harbor *Y1*	16.50	1.25	19.50	5.25	22.00	8.75	24.50	9.50	25.00	10.50	25.50	11.00	27.00	10.75								
Lorain *N2*	17.50	2.25	20.50	6.25	23.00	9.75	25.50	10.50	26.00	11.50	26.50	12.00	28.00	11.75	6.50	+8.50	10.50	+6.25	13.00	+3.75	14.50	+2.25
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	20.0	6.25	24.00	10.25	26.00	13.75	26.50	12.50	27.00	13.50	27.50	14.00	28.00	12.75								
Youngstown *R3*	22.0	6.25	26.00	10.25	28.00	13.75	28.50	13.00	29.00	14.00	29.50	14.50	30.00	13.75								
Fairless *N2*	20.0	6.25	24.00	10.25	26.00	13.75	26.50	12.50	27.00	13.50	27.50	14.00	28.00	12.75								
Fontana *K1*	10.50		14.50		16.50		17.00		17.50		18.00		18.50									
Pittsburgh *J3*	22.00	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75	8.00	+6.00	13.00	+2.75	15.50	+0.25	20.50	4.75
Alton, Ill. *L1*	20.0	6.25	24.00	10.25	26.00	13.75	26.50	12.50	27.00	13.50	27.50	14.00	28.00	12.75								
Sharon *M3*	22.0	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75								
Pittsburgh *N1*	22.0	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75	8.00	+6.00	13.00	+2.75	15.50	+0.25	20.50	4.75
Wheeling *W5*	22.0	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75								
Wheatland *W4*	22.0	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75								
Youngstown *Y1*	22.0	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75	8.00	+6.00	13.00	+2.75	15.50	+0.25	20.50	4.75
Indiana Harbor *Y1*	21.0	7.25	25.00	11.25	27.00	14.75	27.50	13.50	28.00	14.50	28.50	15.00	29.00	13.75								
Lorain *N2*	22.0	8.25	26.00	12.25	28.00	15.75	28.50	14.50	29.00	15.50	29.50	16.00	30.00	14.75	8.00	+6.00	13.00	+2.75	15.50	+0.25	20.50	4.75

Threads only, buttweld and seamless 2½ pt higher discount. Plain ends, buttweld and seamless, 3-in. and under, 4½ pt higher discount. Buttweld jobbers discount, 5 pct.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb, East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2 in., 1½ pt.; 2½ and 3-in., 1 pt. e.g., zinc price range of over 11¢ to 13¢ would lower discounts; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 13.00¢ per lb.

Steel Prices *(Effective Sept. 27, 1955)*

To identify producers, see Key on preceding page

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer *U1*	4.725	5.65	5.825	.....	.....	.....	.....
So. Chicago *R3*	.....	.....	.....	7.50	.....	.....	.....
Ensley *T2*	4.725	5.65	.....	.....	.....	.....	.....
Fairfield *T2*	.....	5.65	.....	7.50	.....	5.625	.....
Gary *U1*	4.725	5.65	.....	.....	.....	5.625	.....
Ind. Harbor *I3*	4.725	.....	5.825	7.50	.....	5.525	.....
Johnstown *B3*	.....	5.65	.....	.....	.....	.....	.....
Joliet *U1*	.....	5.65	5.825	.....	.....	.....	.....
Kansas City *S2*	.....	.....	.....	7.90	.....	.....	.....
Lackawanna *B3*	4.725	5.65	5.825	.....	.....	5.625	.....
Minnequa *C6*	4.725	5.15	5.825	7.50	.....	5.625	12.40
Pittsburgh *O1*	.....	.....	.....	.....	11.90	.....	12.40
Pittsburgh *P5*	.....	.....	.....	.....	.....	.....	12.40
Pittsburgh *J3*	.....	.....	.....	7.90	.....	.....	.....
Seattle *B2*	.....	.....	.....	8.40	.....	5.775	12.90
Stockton *B3*	4.725	.....	5.825	.....	.....	5.625	.....
Struthers *Y1*	.....	.....	.....	7.90	.....	.....	.....
Torrance *C7*	.....	.....	.....	.....	.....	5.775	.....
Williamsport *S5*	.....	5.65	.....	.....	.....	.....	.....
Youngstown *R3*	.....	.....	.....	7.90	.....	.....	.....

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length) Semi-Processed	Fully Processed
Field	8.40	8.60	.....
Armature	9.35	9.60	10.10
Elect.	9.95	10.20	10.70
Motor	10.95	11.20	11.70
Dynamo	11.85	12.10	12.60
Trans. 72	12.80	13.05	13.55
		Grain Oriented	
Trans. 65	13.35	.....	.....
Trans. 58	13.85	Trans. 80	17.45
Trans. 52	14.85	Trans. 73	17.95

Producing points: Beech Bottom (*W3*); Brackenridge (*A3*); Granite City (*G2*); Indiana Harbor (*I3*); Mansfield (*E2*); Newport, Ky. (*N5*); Niles, O. (*N3*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville (*A7*).

* Coils 75¢ higher.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Cwt	Woven Wire Fence 9-15½ ga. Cwt	"T" Fence Posts Cwt	Single Loop Bale Ties Cwt	Galv. Barbed and Twisted Barbless Wire Cwt	Merch. Wire Annl'd ¢/lb.	Merch. Wire Galv. ¢/lb.
Alabama City *R3*	152	162	.....	173	175	7.40	7.80
Aliquippa, Pa. *J3*	152	162	.....	.....	.....	7.40	7.80
Atlanta *A8*	154	167	.....	175	180	7.50	8.025
Bartonville *K2**	154	168	.....	175	181	7.50	8.075
Buffalo *W6*	.....	.....	.....	.....	.....	7.40	7.80
Chicago, Ill. *N4***	152	166	.....	173	179	7.40	8.00
Cleveland *A6*	157	.....	.....	.....	.....	7.40	.....
Cleveland *A5*	.....	.....	.....	.....	.....	7.40	.....
Crawfordsville *M4**	154	167	.....	175	175	7.50	8.05
Donora, Pa. *A5*	152	162	.....	173	175	7.40	7.80
Duluth *A5*	152	162	.....	173	175	7.40	7.80
Fairfield, Ala. *T2*	152	162	.....	173	175	7.40	7.80
Galveston *D4*	157	.....	.....	.....	.....	.....	.....
Houston *S2*	167	170	.....	.....	180	7.65	8.05
Johnstown, Pa. *B3**	152	166	.....	.....	175	7.40	7.80
Joliet, Ill. *A5*	152	162	.....	173	175	7.40	7.80
Kokomo, Ind. *C9*	154	154	.....	175	177	7.50	7.90
Los Angeles *B2**	.....	.....	.....	.....	.....	8.35	8.925
Kansas City *S2*	167	174	.....	178	180	7.65	8.05
Minnequa *C6*	157	167	162	178	180	7.65	8.05
Monessen *P6*	152	162	.....	.....	.....	7.40	7.80
Moline, Ill. *R3*	.....	162	162	.....	.....	.....	.....
Pittsburgh, Cal. *C7*	171	185	.....	.....	195	8.35	8.75
Portsmouth *P7*	.....	.....	.....	.....	.....	7.40	.....
Rankin, Pa. *A5*	152	162	.....	.....	175	7.40	7.80
So. Chicago *R3*	152	162	157	173	175	7.40	7.80
S. San Francisco *C6*	.....	.....	.....	197	195	8.35	8.75
Sparrows Pt. *B3**	154	.....	.....	175	181	7.50	8.075
Struthers, O. *Y1*	.....	.....	.....	.....	.....	7.40	7.90
Worcester *A5*	158	.....	.....	.....	.....	7.70	.....
Williamsport, Pa. *S5*	.....	.....	160	.....	.....	.....	.....

Galvanized products computed with zinc at 5¢ per lb. Exceptions: *zinc at 12.5¢ per lb; **13¢ zinc.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Buffalo, N. Y. *R7*	7.00	8.95	10.50	12.65	15.35
Carnegie, Pa. *S9*	.....	8.95	10.50	12.65	15.35
Cleveland *A5*	7.00	8.95	10.50	12.65	15.35
Detroit *D1*	7.10	9.05	10.60	12.75	.....
Detroit *D2*	7.10	9.05	10.60	.....	.....
Harrison, N. J. *C11*	.....	.....	10.80	12.95	15.65
Indianapolis *C5*	7.15	9.10	10.50	12.65	15.35
New Castle, Pa. *B4*	7.00	8.95	10.50	12.65	.....
New Haven, Conn. *D1*	7.45	9.25	10.80	12.95	.....
Pawtucket, R. I. *N7*	7.55	9.25	10.80	12.95	15.65
Pittsburgh *S7*	7.00	8.95	10.50	12.65	15.35
Riverdale, Ill. *A1*	7.10	8.95	10.50	12.65	15.35
Sharon, Pa. *S1*	7.00	8.95	10.50	12.65	15.35
Trenton *R4*	.....	.....	.....	.....	.....
Wallingford *W1*	7.45	9.25	10.80	12.95	15.65
Warren, Ohio *T4*	7.00	8.95	10.50	12.65	15.35
Weirton, W. Va. *W3*	7.10	8.95	10.50	.....	.....
Worcester, Mass. *A5*	7.85	9.25	10.80	12.95	15.65
Youngstown *C5*	7.00	8.95	10.50	12.65	15.35

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
Babcock & Wilcox	2	13	30.87	36.51	29.94	.....
	2½	12	41.57	49.16	40.31	.....
	3	12	47.99	56.76	46.54	.....
	3½	11	56.03	66.27	54.34	.....
	4	10	74.41	88.00	72.16	.....
National Tube	2	13	30.87	36.51	29.94	.....
	2½	12	42.57	49.16	40.31	.....
	3	12	47.99	56.76	46.54	.....
	3½	11	56.03	66.27	54.34	.....
	4	10	74.41	88.00	72.16	.....
Pittsburgh Steel	2	13	30.87	36.51	.....	.....
	2½	12	41.57	49.16	.....	.....
	3	12	47.99	56.76	.....	.....
	3½	11	56.03	66.27	.....	.....
	4	10	74.41	88.00	.....	.....

WAREHOUSES

Base price, f.o.b., dollars per 100 lb.

Cities	City Delivery Charge	Sheets: Hot-Rolled	Sheets: Cold-Rolled	Sheets: Galvanized (18 gage)	Strip: Hot-Rolled	Strip: Cold-Rolled	Plates	Shapes: Standard Structural	Bars: Hot-Rolled	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Baltimore	$.10	7.63	8.32	9.10	7.45	.....	7.21	7.93	7.61	8.62	14.38	13.44-15.96	16.36	16.29-16.49
Birmingham	.15	6.80	7.93	8.85	7.00	.....	6.99	7.28	7.08	9.35	.....	.....	.....	.....
Boston	.10	7.70	8.81	10.27	7.94-7.96	10.30	7.89	8.13	7.83	9.53	13.65-13.80	13.40-13.45	16.65	16.50
Buffalo	.30	6.80	8.05	9.77	7.15	.....	7.15	7.40	7.10	7.90	.....	13.10	.....	16.15
Chicago	.25	6.80	8.34	8.50	7.00	.....	6.99	7.28	7.08	7.75	13.20	12.85	16.05	15.90
Cincinnati	.25	6.92	8.33	8.90	7.30	.....	7.28	7.75	7.32	8.05	13.44	13.09	16.29	16.14
Cleveland	.30	6.80	8.30	8.85	7.10	.....	7.10	7.61	7.14	7.85	.....	12.91	.....	15.96
Denver		8.60	10.00	11.22	8.90	.....	8.60	8.75	8.90	9.82	.....	.....	.....	17.97
Detroit	.25	6.90	8.53	8.78	7.34	8.15	7.27	7.75	7.36	8.04	13.40	13.05	16.25	16.10
Houston		7.85	8.75	10.49	8.15	.....	7.80	8.20	8.25	9.85-9.95	14.35	14.00	17.15	16.80
Kansas City	.20	7.47	8.60	9.17	7.73	.....	7.66	7.95	7.75	8.52	.....	13.52	.....	.....
Los Angeles	.10	8.05	10.00	11.00	8.35	.....	8.05	8.30	8.05	11.25	.....	14.25	.....	17.85
Memphis	.10	7.12	8.25	.....	7.38	.....	7.31	7.60	7.40	9.15	.....	.....	.....	.....
Milwaukee	.25	6.80	8.43	8.50	7.15	.....	7.08	7.45	7.17	7.94	.....	12.94	.....	15.99
New Orleans	.15	7.20	8.35	.....	7.45	.....	7.40	7.70	7.50	9.50	.....	.....	.....	.....
New York	.10	7.46	8.68	9.44	8.07	9.95	7.76	7.99	7.96	9.48	13.63	13.28	16.48	16.33
Norfolk	.20	7.25	.....	.....	7.65	.....	7.45	7.95	7.65	9.50	.....	.....	.....	.....
Philadelphia	.10	7.14	8.42	9.35	7.67	.....	7.37	7.74	7.64	8.46	13.51	13.16	16.36	16.21
Pittsburgh	.25	6.60	8.34	9.20	7.16	9.00	6.99	7.28	7.08	7.85	13.20	12.85	16.05	15.90
Portland		7.00-8.60	8.80	10.65	8.00	.....	7.75	7.85-8.15	7.95	11.80	.....	15.00	.....	17.50
Salt Lake City	.20	.....	10.00	.....	9.35	.....	.....	9.20	9.15	.....	.....	.....	.....	.....
San Francisco	.10	8.10	9.65	10.15	8.35	.....	8.05	8.25	8.05	11.20*	.....	14.25	.....	17.85
Seattle	.00	8.55	10.40	10.80	8.65	.....	8.20	8.30	8.35	11.70	.....	14.60	.....	17.65
St. Louis	.25	7.09	8.63	9.19	7.35	.....	7.28	7.68	7.37	8.14	13.49	13.14	16.35	16.19
St. Paul	.25	7.66	8.39-9.14	9.16	7.72	.....	7.65	7.94	7.74	8.51	.....	13.51	.....	16.38

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity.

Exceptions: (1) 1500 to 9999 lb. (2) 1000 lb or over. (3) $.25 delivery. (4) 1000 to 1999 lb, $.25 delivery.

* Plus analysis charge.

Miscellaneous Prices

(Effective Sept. 27, 1955)

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb
18	4	1	—	—	$1.60
18	4	1	—	5	2.305
18	4	2	—	—	1.765
1.5	4	1.5	8	—	.96
6	4	3	6	—	1.35
6	4	2	5	—	1.105

High-carbon chromium ..... .77
Oil hardened manganese ..... .43
Special carbon ..... .39
Extra carbon ..... .33
Regular carbon ..... .275

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb. f.o.b.

	Cladding	Plate (*A3, J2, L4*) 10 pct	Plate (*A3, J2, L4*) 15 pct	Plate (*A3, J2, L4*) 20 pct	Sheet (*I2*) 20 pct
Stainless Type	304	30.30	33.15	36.05	32.50
	316	35.50	38.45	41.40	47.00
	321	32.00	34.85	37.75	37.25
	347	34.40	37.90	41.40	48.25
	405	25.80	29.60	33.35	.....
	410, 430	25.30	29.10	32.85	.....

CR Strip (S9) Copper, 10 pct, 2 sides, 38.00; 1 side, 30.00.

LAKE SUPERIOR ORES

51.50% Fe; natural content, delivered lower Lake ports. Prices effective for 1955 season.

	Gross Ton
Openhearth lump	$11.25
Old range, bessemer	10.40
Old range, nonbessemer	10.25
Mesabi, bessemer	10.25
Mesabi, nonbessemer	10.10
High phosphorus	10.00

COKE

	Net-Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$13.00 to $13.50
Foundry, beehive (f.o.b. oven) Connellsville, Pa.	$16.00 to $16.50
Foundry, oven coke	
Buffalo, del'd	$28.08
Chicago, f.o.b.	24.50
Detroit, f.o.b.	26.25
New England, del'd	26.05
Seaboard, N. J., f.o.b.	24.50
Philadelphia, f.o.b.	24.00
Swedeland, Pa., f.o.b.	24.00
Plainesville, Ohio, f.o.b.	25.50
Erie, Pa., f.o.b.	25.00
Cleveland, del'd	27.43
Cincinnati, del'd	26.56
St. Paul, f.o.b.	23.75
St. Louis, f.o.b.	26.00
Birmingham, f.o.b.	22.65
Lone Star, Tex., f.o.b.	19.50

ELECTRODES

Cents per lb, f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE Diam. (In.)	GRAPHITE Length (In.)	GRAPHITE Price	CARBON* Diam. (In.)	CARBON* Length (In.)	CARBON* Price
24	84	23.00	40	100, 110	9.90
20	72	22.25	35	110	9.90
16 to 18	72	22.50	30	110	10.05
14	72	23.00	24	72 to 84	10.30
12	72	23.50	20	90	10.10
10	60	24.25	17	72	10.35
7	60	24.50	14	72	10.85
6	60	27.25	12	60	11.75
4	40	30.25	10	60	11.80
3	40	32.00	8	60	12.10
2½	30	33.75			
2	24	52.50			

* Prices shown cover carbon nipples.

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts

	Discount Less Case	Discount C.
½ in. & smaller x 4 in. & shorter	+5	17
½ in. & smaller x 6 in. & shorter	+12	11
9/16 in. & ⅝ in. x 6 in. & shorter	+13	10
¾ in. & larger x 6 in. & shorter	+16	7
All diam. longer than 6 in.	+25	net
Rolled thread carriage bolts ½ in. & smaller x 6 in. and shorter	+10	12
Lag, all diam. x 6 in. & shorter	+2	18
Lag, all diam. longer than 6 in.	+11	12
Plow bolts	18	18

Nuts, H.P., C.P., reg. & hvy.

	Base Discount	Discount, Case or Keg
⅜" or smaller	55	64
⅞" to 1⅛" inclusive	55	63
1¼" to 1½" inclusive	57	65
1⅝" and larger	51	61

C.P. Hex. regular & hvy.

⅜" or smaller	55	64
⅞" and larger	51	61

Hot Galv. Nuts (all types)

¾" or smaller	38	50
⅞" to 1½" inclusive	36	49

Finished, Semi-finished, Slotted or Castellated Nuts

¾" and smaller	55	66
⅞" and larger	51	63

Rivets

	Base per 100 lb
½ in. and larger	$9.95
	Pct Off List
7/16 in. and smaller	32

Cap Screws

	Discount Bright	Discount H.C. Heat Treated
New std. hex head, packaged ¼" thru ½" diam. x 6" and shorter	34	20
9/16 and ⅝" x 6" and smaller and shorter	31	16
¾", ⅞", 1" x 6" and shorter	8	+11
New std. hex head, bulk* ¼" thru ½" diam. x 6" and shorter	49	41
9/16" and ⅝" diam. x 6" and shorter	48	39
¾", ⅞", 1" x 6" and shorter	31	20

*Minimum quantity per item:
15,000 pieces ¼", 5/16", ⅜" diam.
5,000 pieces 7/16", ½", 9/16", ⅝" diam.
2,000 pieces ¾", ⅞", 1" diam.

Machine Screws & Stove Bolts

	Quantity	Discount Mach. Screws	Discount Stove Bolts
Packaged, package list		27	38
Bulk, bulk list			
¼-in. diam. & under	25,000-200,000	20	61
5/16-in. diam. & larger	15,000-100,000	20	61
All diam. over 3 in. long	5,000-100,000	—	61

Machine Screw & Stove Bolt Nuts

	Quantity	Discount Hex	Discount Square
Packaged, package list		24	27
Bulk, bulk list			
⅜-in. diam. & smaller	25,000-200,000	18	20

CAST IRON WATER PIPE INDEX

Birmingham	109.3
New York	121.5
Chicago	126.0
San Francisco-L. A.	131.1

August 1955 value, Class B or heavier, 6 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1 issue. Source: U. S. Pipe and Foundry Co.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$122.00
No. 1 Ohio	.....
Sec. quality, Pa., Md., Ky., Mo., Ill.	114.00
No. 2 Ohio	.....
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	18.00

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$128.00
Childs, Hays, Pa.	133.00
Chicago District	138.00
Western Utah	.....
California	.....
Super Duty Hays, Pa., Athens, Tex., Windham	145.00
Curtner, Calif.	163.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	21.00
Silica cement, net ton, bulk, Hays, Pa.	24.00
Silica cement, net ton, bulk, Chicago District, Ensley, Ala.	22.00
Silica cement, net ton, bulk, Utah and Calif.	.....

Chrome Brick

Per net ton

Standard chemically bonded, Balt.,	$86.00
Standards chemically bonded, Curtner, Calif.	96.25
Burned, Balt.	80.00

Magnesite Brick

Standard Baltimore	$109.00
Chemically bonded, Baltimore	97.50

Grain Magnesite

St. ⅝-in. grains

Domestic, f.o.b. Baltimore in bulk fines removed	$64.40
Domestic, f.o.b. Chewalah, Wash., Luning, Nev. in bulk	40.00
In sacks	46.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in: Pa., W. Va., Ohio	$15.00
Midwest	15.60
Missouri Valley	14.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags	11.25¢
Canadian sponge iron, Del'd in East, carloads	9.5¢ / 10.75¢
Domestic sponge iron, 98+% Fe, carload lots	9.5¢
Electrolytic iron, annealed, imported 99.5+% Fe	27.5¢
domestic 99.5+% Fe	36.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	53.5¢
Hydrogen reduced iron minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 00.8+% Fe	83.0¢ to $1.48
Aluminum	31.5¢
Brass, 10 ton lots	29.50¢ to 36.50¢
Copper, electrolytic	57.75¢
Copper, reduced	57.75¢
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99% min., and quality, del'd	$3.60
Lead	23.50¢
Manganese	57.0¢
Molybdenum, 99%	$2.75
Nickel, unannealed	89.50¢
Nickel, annealed	96.50¢
Nickel, spherical, unannealed	93.50¢
Silicon	43.50¢
Solder powder	7.0¢ to 9.0¢ plus met. value
Stainless steel, 302	91.0¢
Stainless steel, 316	$1.10
Tin	14.04¢ plus metal value
Tungsten, 99% (65 mesh)	$4.50
Zinc, 10 ton lots	17.5¢ to 25.0¢

Ferroalloy Prices

(Effective Sept. 27, 1955)

Ferrochrome

Contract prices, cents per lb contained Cr, lump, bulk, carloads, del'd, 67-71% Cr, .30-1.00% max. Si.

0.02% C	38.50*	0.20% C	35.50*
0.06% C	36.50*	0.50% C	35.25*
0.10% C	36.00*	1.00% C	34.00*
0.15% C	35.75*	2.00% C	33.75*

4.00-4.50 C, 67.70% Cr, 1-2% Si ... 26.25*
2.50-5.00% C, 57-64% Cr, 2.00-4.00% Si ... 25.00*

S. M. Ferrochrome

Contract prices, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	28.65*
Ton lots	30.55*
Less ton lots	32.05*

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 3¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.27*
0.50% max. C	1.27*
9 to 11% C, 88-91% Cr, 0.75% Fe..	1.36*

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Contract price, carloads, delivered, lump, 3-in. x down, per lb of Cr, packed.

Carloads	41.85*
Ton lots	46.15*
Less ton lots	48.65*

Calcium-Silicon

Contract price per lb of alloy, lump, delivered, packed.

30-33% Cr, 60-65% Si, 3.00 max. Fe.

Carloads	22.95*
Ton lots	25.25*
Less ton lots	26.75*

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered, packed.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	23.05*
Ton lots	24.95*
Less ton lots	25.95*

SMZ

Contract prices, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ⅛ in. x 12 mesh.

Ton lots	19.65
Less ton lots	20.90

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots	16.60
Ton lots	18.10
Less ton lots	19.35

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	17.50
Ton lots to carload packed	18.25
Less ton lots	19.50

Ferromanganese

Maximum contract base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	9.50
Clairton, Pa.	9.50
Sheridan, Pa.	9.50
Philo, Ohio	9.50

Add or subtract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk	12.10*
Ton lots packed	14.30*

* Effective Oct. 1, 1955.

Spiegeleisen

Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa.

Manganese	Silicon	
16 to 19%	2% max.	$84.00
19 to 21%	2% max.	86.00
21 to 23%	2% max.	88.50
23 to 25%	2% max.	91.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	45.00
Ton lots	43.50

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads	30.00
Ton lots	32.00
250 to 1999 lb	34.00
Premium for hydrogen-removed metal	0.75

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50, Si 1.50% max. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn.. 21.85*

Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	32.00	33.85	35.05
0.17% max. C	29.95	31.80	33.80
0.15% max. C	28.45	30.30	31.50
0.30% max. C	26.95	28.80	30.00
0.50% max. C	26.45	28.30	29.50
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	23.45	25.30	26.50

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢.

Carload bulk	11.20*
Ton lots	12.65*
Briquet contract basis carloads, bulk, delivered, per lb of briquet	12.70*
Ton lots, packed	14.90*

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk Iowa, or Wenatchee, Wash., $87.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $90.50. Add $1.00 per ton for each additional 0.50% Si up to and including 17%. Add $1.45 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, packed.

	Ton lots	Carloads
96.50% Si, 2% Fe	22.75*	21.45*
98% Si, 1% Fe	23.25*	21.95*

Silicon Briquets

Contract price, cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si briquets.

Carloads, bulk	6.75*
Ton lots, packed	9.35*

Electric Ferrosilicon

Contract price, cents per lb contained Si, lump, bulk, carloads, delivered.

50% Si	11.75	75% Si	15.40*
65% Si	14.50	85% Si	17.10*
	90% Si	18.50*	

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Ferrovanadium

50-55% V contract, basis, delivered, per pound, contained V, carloads, packed.

Openhearth	3.10*
Crucible	3.10*
High speed steel (Primos)	3.30*

Alsifer, 20% Al, 40% Si, 40% Fe, Contract basis, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads	10.35¢
Ton lots	11.50¢

Calcium molybdate, 46.3-46.6% f.o.b. Langeloth, Pa., per pound contained Mo ... $1.28

Ferrocolumbium, 50-60%, 2 in. x D contract basis, delivered per pound contained Cb.

Ton lots	$6.90
Less ton lots	6.95

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, contract basis, del'd, ton lots, 2-in. x D per lb con't Cb plus Ta. $4.65

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth, Pa., per pound contained Mo .. $1.46

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $4.00 unitage, per gross ton ... $90.00
10 tons to less carload ... $110.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... $1.50
Less ton lots ... $1.50

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload, per net ton ... $177.00

Ferrotungsten, ¼ x down, packed, per pound contained W, ton lots, f.o.b. ... $3.45

Molybdic oxide, briquets, per lb contained Mo, f.o.b. Langeloth, Pa. ... $1.27
bags, f.o.b. Washington, Pa., Langeloth, Pa. ... $1.24

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per lb.

Carload, bulk lump	15.50¢
Ton lots, packed lump	16.75¢
Less ton lots, lump packed	17.25¢

Vanadium Oxide, 86 - 89% V_2O_5 contract basis, per pound contained V_2O_5 ... $1.32*

Zirconium contract basis, per lb of alloy.

35-40%, f.o.b. freight allowed, carloads, packed	26.25¢*
12-15%, del'd, lump, bulk-carloads	8.50¢*

Boron Agents

Borosil, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed. B, 3.14%, Si, 40-45%, per lb contained 2 ... $5.25

Bortam, f.o.b. Niagara Falls

Ton lots, per pound	45¢
Less ton lots, per pound	50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed
Ton lots per pound ... 10.00¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50%, max. Al, 0.50% max. C, 1 in., x D, Ton lots.... 1.20
F.o.b. Wash., Pa.; 100 lb up

10 to 14% B	.85
14 to 19% B	1.20
19% min. B	1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over

No. 1	$1.00
No. 79	50¢

Manganese - Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.

Ton lots	$1.46
Less ton lots	1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots ... $2.05

Silena, contract basis, delivered.
Ton lots ... 45.00¢

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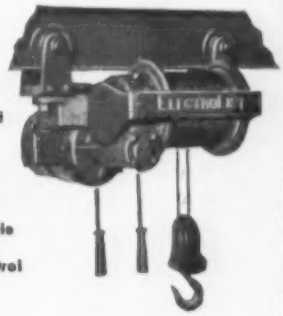

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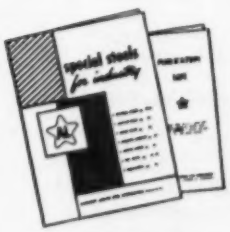

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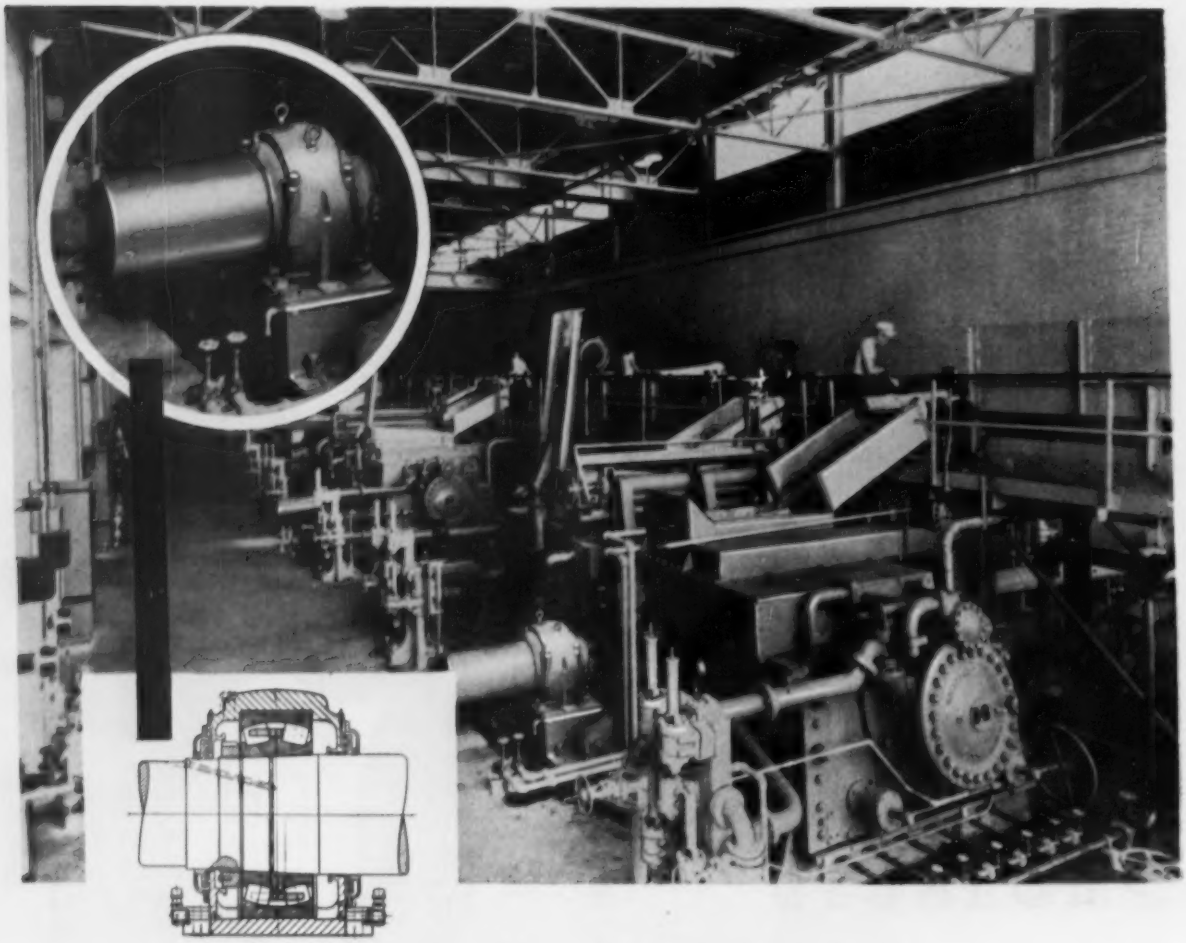

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EIGHT 40,000-lb. GRINDSTONES "Beat 'Em to a Pulp"

—at huge, new Bowaters Southern Paper Corp. Mill—Calhoun, Tenn.

The grindermen above are feeding barked logs into the chutes that feed eight Great Northern Waterous 5′ high-production grinders. Logs are pressed hydraulically against revolving high-speed grindstones, which are cooled by jets of water that help reduce the logs to pulp. A single grinder produces 50 tons of pulp per day.

On each grinder are two SKF Spherical Roller Bearings supporting the 40,000-lb. grindstone. Bearings are mounted directly on tapered shafts. SKF worked hand-in-hand with the Montague Machine Company in designing the housings, and SKF's hydraulic removal system is used for bearing mounting and removal.

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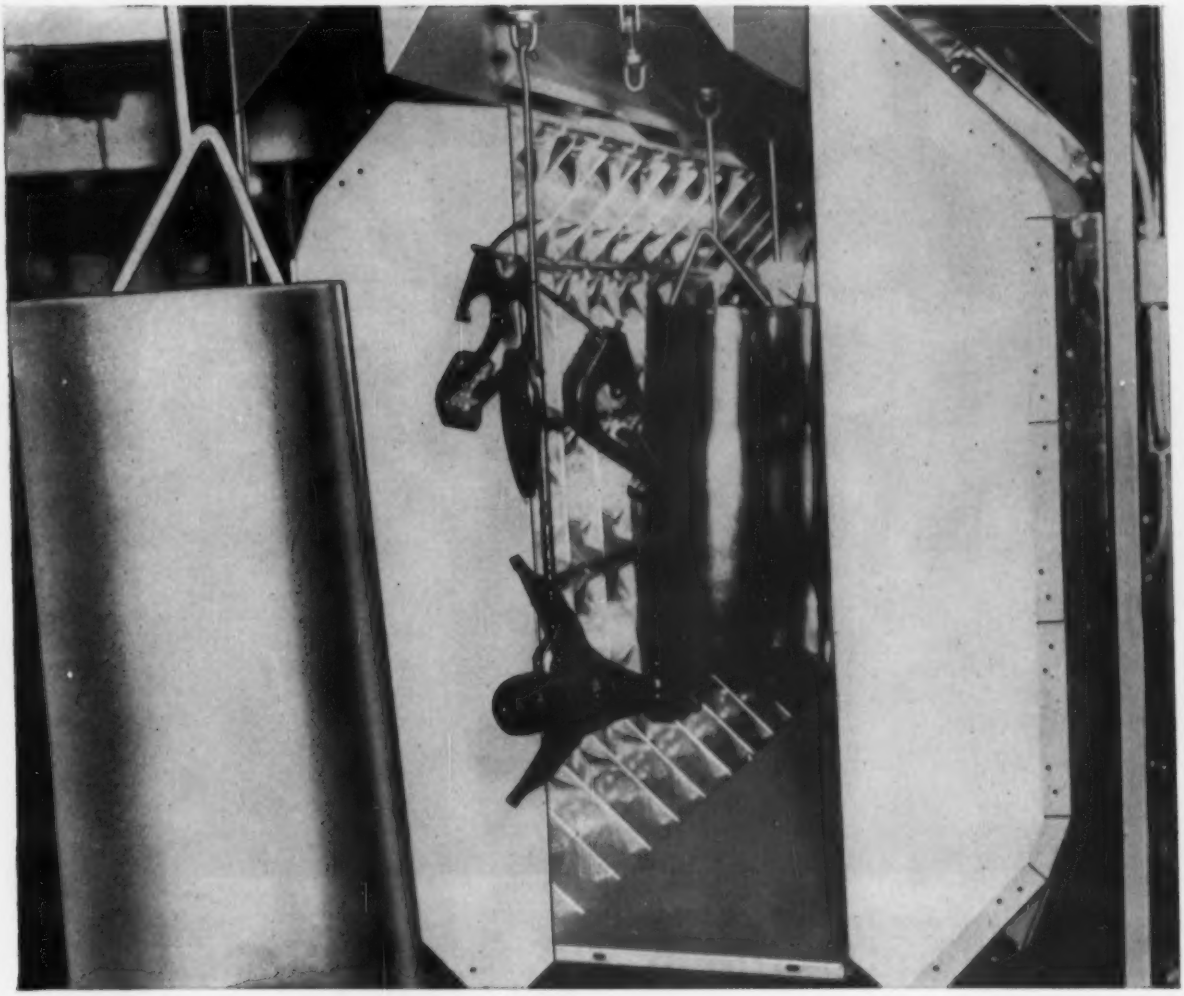

Eleven minutes is just long enough to save some money

International Harvester *knew* that radiant heat was fast, but they still got a happy surprise when they installed a Fostoria Oven: Before, they had dried cream separators in a convection oven. The thing took up *480 square feet* of floor space and needed a baking cycle of *one hour*. (We won't even mention the long warm-up time.)

That's when Fostoria came in with a specially designed radiant oven that cost less to buy, less to operate. It fits handsomely in IH's production line. It's only *eleven feet long*, and bakes a neat finish coat of enamel on the separators in just *eleven minutes*. You can just bet your old convection oven they're happy with it.

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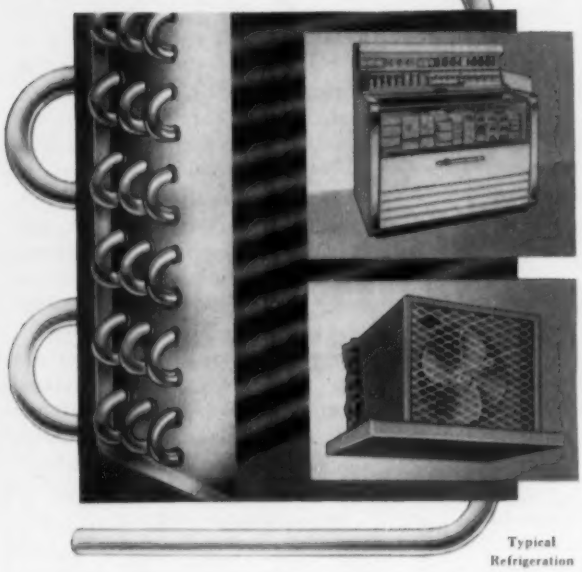

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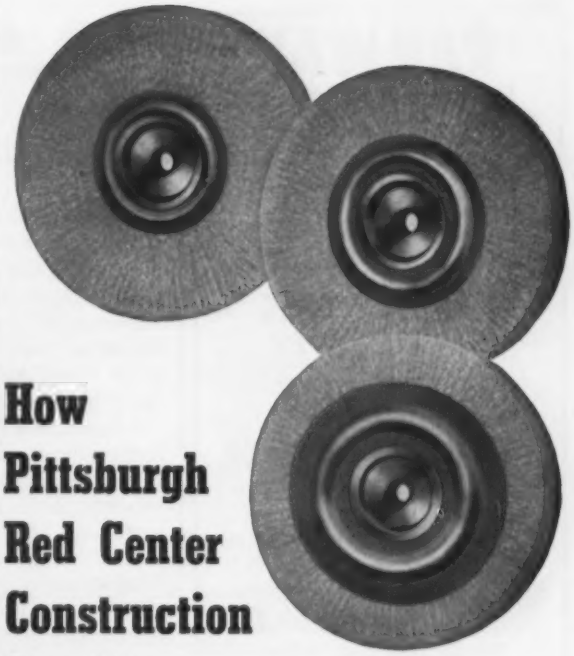

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THE CLEARING HOUSE

News of Used and Rebuilt Machinery

Show Helped . . . Although used machine tools played a modest role in the spit and polish atmosphere of the Chicago Machine Tool Show, a good many used machinery dealers figure their business got a big boost when the visitors looked at the price tags.

Like a new car showing, the models were loaded with accessories, gimmicks and automatic this-and-thats which boosted the price tags.

Handle Same Jobs . . . "In one case there was a machine shown for $60,000 doing a job we could almost duplicate with a $5000 used machine," a leading northern Ohio used machinery dealer said last week.

"Of course it's a very exaggerated and unusual spread but the psychological impact of the prices for machines and accessories on the type of customers we sell was unmistakable.

"I'm sure a lot of the good work the show did is bound to rub off on our business. While we can't and don't pretend to be able to equal outputs and versatility of the newest and latest machines at the show, a good many of the smaller operators are sure to take a new look at the used machinery field."

Ohio Still Spurts . . . In the northern Ohio area used machinery business is continuing an upward spurt started in late August. Auto subcontractors now holding contracts for a large volume of parts on new models represent a substantial part of the business since in many cases there was apprehension over size of orders for new models. The situation is similar in the appliance field. With new production contracts in their hands, the subcontractors are now shopping for fast delivery on low-investment used equipment to make their delivery dates. This condition figures to improve as the model year progresses further.

See Shortage . . . The rush is causing a shortage of good used heavy equipment and boosting the price for the few choice items available. This applies principally to big turret lathes, boring mills, horizontal mills, press brakes, shears and forging equipment. Premium prices are common with no let-up in sight for the present.

At a stove equipment plant auction in Lima, Ohio, last week, bidding was spirited on big presses and open back inclinable presses up to the 200-ton class. One 750-ton straight side press went for less than expected but observers felt that "the right customer wasn't there." But on the smaller equipment the feeling of optimism among dealers was unmistakable.

Prices Pinch . . . Same situation exists in the East. Business is good but high buying prices and competition for choice models still makes life interesting for dealers. Late model, heavy equipment is bringing 80 and 90 pct of new value in brisk bidding sessions.

In a situation like this, a dealer will often find himself acting for a customer rather than buying on his own. One dealer brought $9500 of a customer's money to a sale to bid on a Davenport automatic. He wound up bidding against another dealer working on a similar arrangement and saw the machine go to a third party far over the new price.

At another sale, this dealer saw a machine go for $5500 as is when he had the same thing in stock for $4000 guaranteed.

Larger houses have their problems too. They must pay prices that mean a puny profit just so they will have the stock to keep customers coming.

The dealer can't sit back with his feet on the desk. He has got to scramble around finding the right machine. But this is nothing new and business is definitely good.

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5 ton Cleveland	96' Span 230 Volt D.C.
10 ton P&H	35' Span 230 Volt D.C.
10 ton Niles	52' Span 230 Volt D.C.
10 ton Niles	67' Span 230 Volt D.C.
10 ton Shaw	72' Span 230 Volt D.C.
10 ton Northern	75' Span 230 Volt D.C.
10 ton P&H	96' Span 230 Volt D.C.
15 ton P&H	54' Span 230 Volt D.C.
15 ton P&H	75' Span 230 Volt D.C.
30 ton P&H	58' Span 230 Volt D.C.
30 ton P&H	60' Span 230 Volt D.C.
30 ton Toledo	75' Span 550/3/60 A.C.
30 ton Shaw	80' Span 230 Volt D.C.

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1	2000	G.E.	MT	6600	600
1	1250	Whse.	CW	6600	593
1	1250	G.E.	MT	2300	257
1	750	G.E.	I-M	2300	400
1	600	Whse.	CW	2300	444
1	500	G.E.	MT	6600	600
1	500	Al. Ch.	ANT	2200	514
1	500	G.E.	I-M	2300	450
1	400	G.E.	I-M	2200	900
1	400	Al. Ch.	ANT	2200	514
1	400	G.E.	MT	2300	360
1	250	Al. Ch.	ANT	2300	440
1	250	Al. Ch.	ART	440	720
1	250	G.E.	MT	2300	900

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3 Phase, 60 cycle

Qu.	H.P.	Make	Type	Volts	R.P.M.
1	400	G.E.	IK	2300	514
1	200	Whse.	CR-873	2300	1160
1	200	Al. Ch.	AR	440/220	600
1	150	Whse.	CR	440/220	600
1	125	Al. Ch.	AR	2300	495
1	100	Al. Ch.	AR	2300	695
1	100	Al. Ch.	AR	2300	495

SYNCHRONOUS MOTORS
3-Phase, 60-Cycle

Qu.	H.P.	Make	P.F.	Volts	R.P.M.
2	2100	G.E.	unity	2300	360
2	2000	G.E.	80%	2300	720
1	750	G.E.	80%	2300	450
1	710	G.E.	80%	2200	720
3	700	G.E.	80%	2300	1200
1	600	G.E.	unity	2300	327
1	250	G.E.	80%	2300	514
1	250	G.E.	80%	440	450
2	200	Whse.	80%	440	1200
1	200	G.E.	80%	440	450
1	150	G.E.	80%	2300	900
1	150	Whse.	80%	440/220	450
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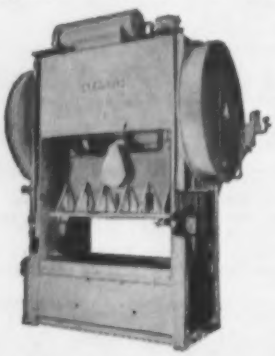

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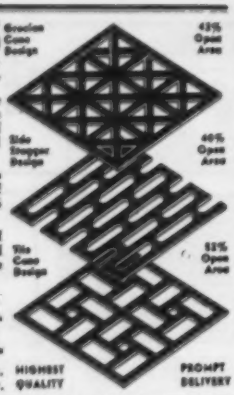

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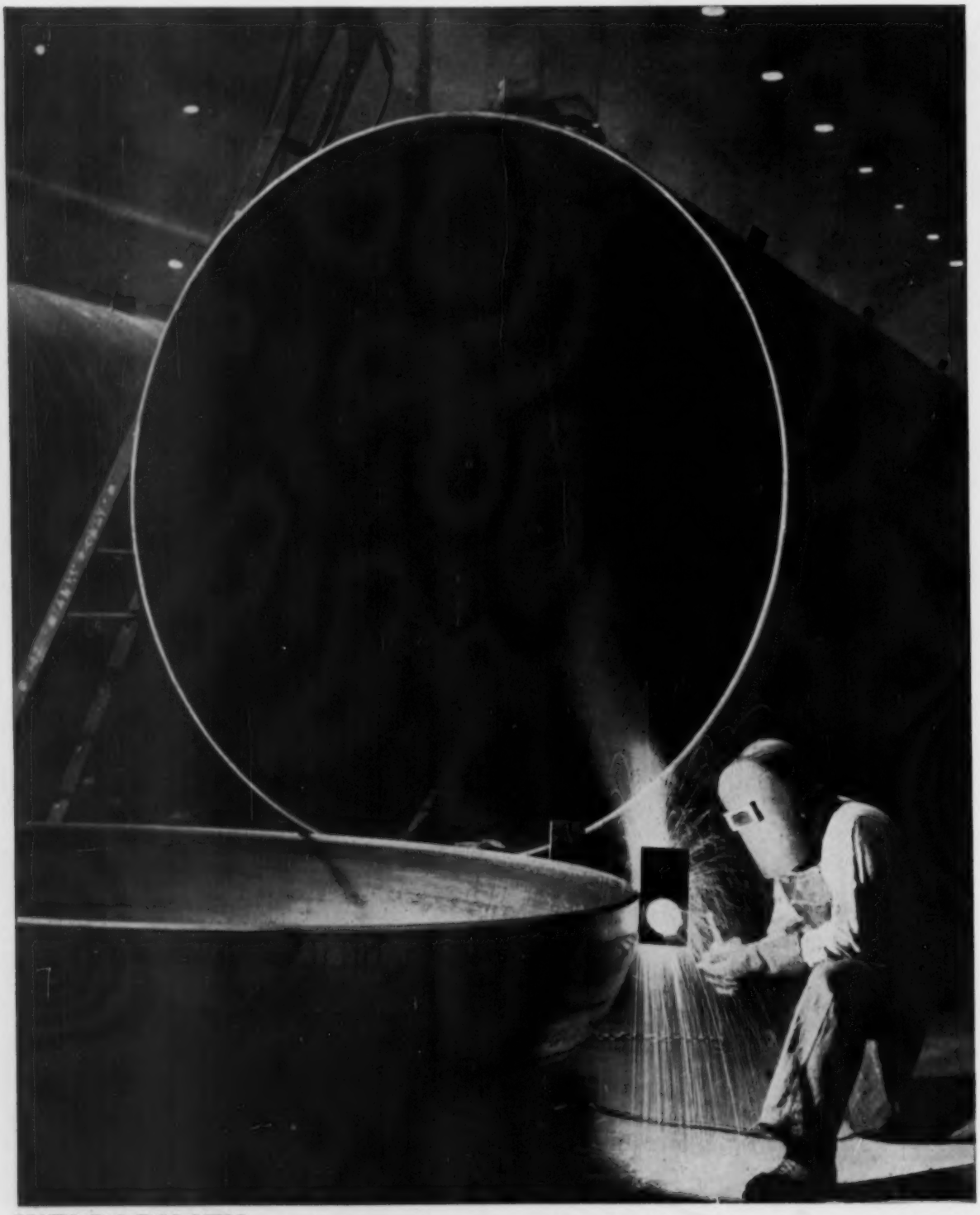

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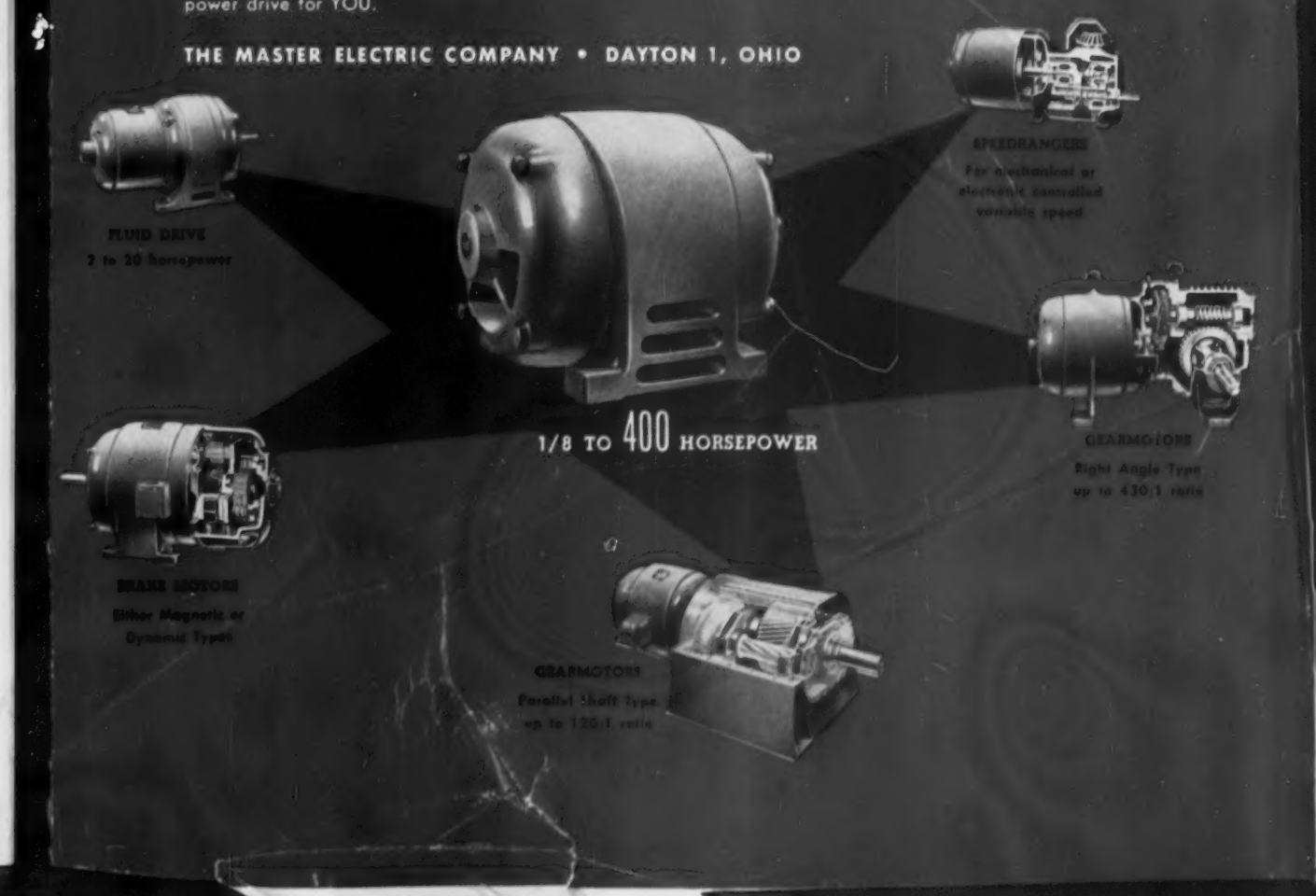

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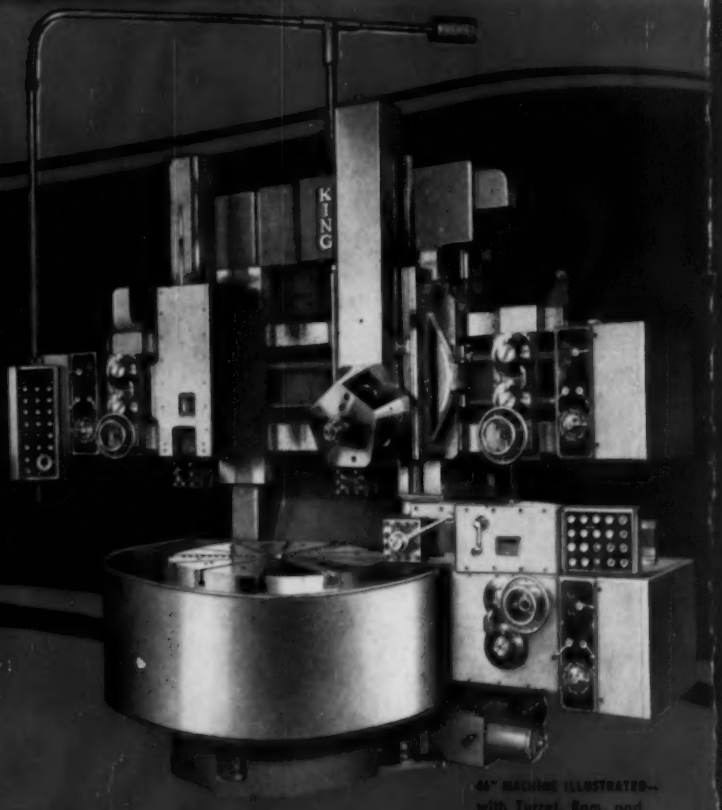

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